SEQUENCE LISTING

<110> CHUGAI RESEARCH INSTITUTE FOR MOLECULAR MEDICINE,INC.

<120> PROTEIN HAVING PDZ DOMAIN SEQUENCE

<130> C2-905DP1PCT

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<150> JP 09-230356

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<151> 1997-8-12

1998-6-19

<160> 87

<170> PatentIn version 2.0

<210> 1

<211> 1373

<212> PRT

<213> Homo sapience

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Met Val

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Leu Asp Leu Cys Asp Ile Glu Leu Thr Glu Lys Pro His Val Asp Leu
        20                  25                  30

Gly Glu Phe Ile Gly Ser Ser Glu Thr Glu Asp Pro Val Leu Ala Met
    35                  40                  45                  50

Thr Asp Ala Gly Gln Ser Thr Glu Glu Val Gln Ala Pro Leu Ala Met
                55                  60                  65

Trp Glu Ala Gly Ile Gln His Ile Glu Leu Glu Lys Gly Ser Lys Gly
                70                  75                  80

Leu Gly Phe Ser Ile Leu Asp Tyr Gln Asp Pro Ile Asp Pro Ala Ser
            85                  90                  95

Thr Val Ile Ile Ile Arg Ser Leu Val Pro Gly Gly Ile Ala Glu Lys
    100                 105                 110

Asp Gly Arg Leu Leu Pro Gly Asp Arg Leu Met Phe Val Asn Asp Val
115                 120                 125                 130

Asn Leu Glu Asn Ser Ser Leu Glu Glu Ala Val Glu Ala Leu Lys Gly
                135                 140                 145

Ala Pro Ser Gly Thr Val Arg Ile Gly Val Ala Lys Pro Leu Pro Leu
                150                 155                 160

Ser Pro Glu Glu Gly Tyr Val Ser Ala Lys Glu Asp Ser Phe Leu Tyr
            165                 170                 175

Pro Pro His Ser Cys Glu Glu Ala Gly Leu Ala Asp Lys Pro Leu Phe
    180                 185                 190

Arg Ala Asp Leu Ala Leu Val Gly Thr Asn Asp Ala Asp Leu Val Asp
195                 200                 205                 210

Glu Ser Thr Phe Glu Ser Pro Tyr Ser Pro Glu Asn Asp Ser Ile Tyr
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                    215                 220                 225
    Ser Thr Gln Ala Ser Ile Leu Ser Leu His Gly Ser Ser Cys Gly Asp
                    230                 235                 240
    Gly Leu Asn Tyr Gly Ser Ser Leu Pro Ser Ser Pro Pro Lys Asp Val
                    245                 250                 255
    Ile Glu Asn Ser Cys Asp Pro Val Leu Asp Leu His Met Ser Leu Glu
                    260                 265                 270
    Glu Leu Tyr Thr Gln Asn Leu Leu Glu Arg Gln Asp Glu Asn Thr Pro
    275                 280                 285                 290
    Ser Val Asp Ile Ser Met Gly Pro Ala Ser Gly Phe Thr Ile Asn Asp
                        295                 300                 305
    Tyr Thr Pro Ala Asn Ala Ile Glu Gln Gln Tyr Glu Cys Glu Asn Thr
                    310                 315                 320
    Ile Val Trp Thr Glu Ser His Leu Pro Ser Glu Val Ile Ser Ser Ala
                    325                 330                 335
    Glu Leu Pro Ser Val Leu Pro Asp Ser Ala Gly Lys Gly Ser Glu His
                    340                 345                 350
    Leu Leu Glu Gln Ser Ser Leu Ala Cys Asn Ala Glu Cys Val Met Leu
    355                 360                 365                 370
    Gln Asn Val Ser Lys Glu Ser Phe Glu Arg Thr Ile Asn Ile Ala Lys
                        375                 380                 385
    Gly Asn Ser Ser Leu Gly Met Thr Val Ser Ala Asn Lys Asp Gly Leu
                    390                 395                 400
    Gly Met Ile Val Arg Ser Ile Ile His Gly Gly Ala Ile Ser Arg Asp
                    405                 410                 415
    Gly Arg Ile Ala Ile Gly Asp Cys Ile Leu Ser Ile Asn Glu Glu Ser
                    420                 425                 430
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Thr Ile Ser Val Thr Asn Ala Gln Ala Arg Ala Met Leu Arg Arg His
435   440   445   450

Ser Leu Ile Gly Pro Asp Ile Lys Ile Thr Tyr Val Pro Ala Glu His
                455   460   465

Leu Glu Glu Phe Lys Ile Ser Leu Gly Gln Gln Ser Gly Arg Val Met
            470   475   480

Ala Leu Asp Ile Phe Ser Ser Tyr Thr Gly Arg Asp Ile Pro Glu Leu
            485   490   495

Pro Glu Arg Glu Glu Gly Glu Gly Glu Glu Ser Glu Leu Gln Asn Thr
    500   505   510

Ala Tyr Ser Asn Trp Asn Gln Pro Arg Arg Val Glu Leu Trp Arg Glu
515   520   525   530

Pro Ser Lys Ser Leu Gly Ile Ser Ile Val Gly Gly Arg Gly Met Gly
                535   540   545

Ser Arg Leu Ser Asn Gly Glu Val Met Arg Gly Ile Phe Ile Lys His
            550   555   560

Val Leu Glu Asp Ser Pro Ala Gly Lys Asn Gly Thr Leu Lys Pro Gly
            565   570   575

Asp Arg Ile Val Glu Ala Pro Ser Gln Ser Glu Ser Glu Pro Glu Lys
    580   585   590

Ala Pro Leu Cys Ser Val Pro Pro Pro Pro Pro Ser Ala Phe Ala Glu
595   600   605   610

Met Gly Ser Asp His Thr Gln Ser Ser Ala Ser Lys Ile Ser Gln Asp
                615   620   625

Val Asp Lys Glu Asp Glu Phe Gly Tyr Ser Trp Lys Asn Ile Arg Glu
            630   635   640

Arg Tyr Gly Thr Leu Thr Gly Glu Leu His Met Ile Glu Leu Glu Lys

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                645                650                655
Gly His Ser Gly Leu Gly Leu Ser Leu Ala Gly Asn Lys Asp Arg Ser
        660                665                670
Arg Met Ser Val Phe Ile Val Gly Ile Asp Pro Asn Gly Ala Ala Gly
675                680                685                690
Lys Asp Gly Arg Leu Gln Ile Ala Asp Glu Leu Leu Glu Ile Asn Gly
                695                700                705
Gln Ile Leu Tyr Gly Arg Ser His Gln Asn Ala Ser Ser Ile Ile Lys
            710                715                720
Cys Ala Pro Ser Lys Val Lys Ile Ile Phe Ile Arg Asn Lys Asp Ala
            725                730                735
Val Asn Gln Met Ala Val Cys Pro Gly Asn Ala Val Glu Pro Leu Pro
        740                745                750
Ser Asn Ser Glu Asn Leu Gln Asn Lys Glu Thr Glu Pro Thr Val Thr
755                760                765                770
Thr Ser Asp Ala Ala Val Asp Leu Ser Ser Phe Lys Asn Val Gln His
                775                780                785
Leu Glu Leu Pro Lys Asp Gln Gly Gly Leu Gly Ile Ala Ile Ser Glu
            790                795                800
Glu Asp Thr Leu Ser Gly Val Ile Ile Lys Ser Leu Thr Glu His Gly
        805                810                815
Val Ala Ala Thr Asp Gly Arg Leu Lys Val Gly Asp Gln Ile Leu Ala
        820                825                830
Val Asp Asp Glu Ile Val Val Gly Tyr Pro Ile Glu Lys Phe Ile Ser
835                840                845                850
Leu Leu Lys Thr Ala Lys Met Thr Val Lys Leu Thr Ile His Ala Glu
                855                860                865
```

Asn Pro Asp Ser Gln Ala Val Pro Ser Ala Ala Gly Ala Ala Ser Gly
              870   875   880

Glu Lys Lys Asn Ser Ser Gln Ser Leu Met Val Pro Gln Ser Gly Ser
              885   890   895

Pro Glu Pro Glu Ser Ile Arg Asn Thr Ser Arg Ser Ser Thr Pro Ala
         900   905   910

Ile Phe Ala Ser Asp Pro Ala Thr Cys Pro Ile Ile Pro Gly Cys Glu
915   920   925   930

Thr Thr Ile Glu Ile Ser Lys Gly Arg Thr Gly Leu Gly Leu Ser Ile
              935   940   945

Val Gly Gly Ser Asp Thr Leu Leu Gly Ala Phe Ile Ile His Glu Val
              950   955   960

Tyr Glu Glu Gly Ala Ala Cys Lys Asp Gly Arg Leu Trp Ala Gly Asp
              965   970   975

Gln Ile Leu Glu Val Asn Gly Ile Asp Leu Arg Lys Ala Thr His Asp
         980   985   990

Glu Ala Ile Asn Val Leu Arg Gln Thr Pro Gln Arg Val Arg Leu Thr
995   1000   1005   1010

Leu Tyr Arg Asp Glu Ala Pro Tyr Lys Glu Glu Glu Val Cys Asp Thr
              1015   1020   1025

Leu Thr Ile Glu Leu Gln Lys Lys Pro Gly Lys Gly Leu Gly Leu Ser
              1030   1035   1040

Ile Val Gly Lys Arg Asn Asp Thr Gly Val Phe Val Ser Asp Ile Val
              1045   1050   1055

Lys Gly Gly Ile Ala Asp Pro Asp Gly Arg Leu Ile Gln Gly Asp Gln
         1060   1065   1070

Ile Leu Leu Val Asn Gly Glu Asp Val Arg Asn Ala Ser Gln Glu Ala

1075   1080   1085   1090

Val Ala Ala Leu Leu Lys Cys Ser Leu Gly Thr Val Thr Leu Glu Val

              1095   1100   1105

Gly Arg Ile Lys Ala Gly Pro Phe His Ser Glu Arg Arg Pro Ser Gln

              1110   1115   1120

Thr Ser Gln Val Ser Glu Gly Ser Leu Ser Ser Phe Thr Phe Pro Leu

          1125   1130   1135

Ser Gly Ser Ser Thr Ser Glu Ser Leu Glu Ser Ser Ser Lys Lys Asn

        1140   1145   1150

Ala Leu Ala Ser Glu Ile Gln Gly Leu Arg Thr Val Glu Met Lys Lys

1155   1160   1165   1170

Gly Pro Thr Asp Ser Leu Gly Ile Ser Ile Ala Gly Gly Val Gly Ser

              1175   1180   1185

Pro Leu Gly Asp Val Pro Ile Phe Ile Ala Met Met His Pro Thr Gly

              1190   1195   1200

Val Ala Ala Gln Thr Gln Lys Leu Arg Val Gly Asp Arg Ile Val Thr

        1205   1210   1215

Ile Cys Gly Thr Ser Thr Glu Gly Met Thr His Thr Gln Ala Val Asn

      1220   1225   1230

Leu Leu Lys Asn Ala Ser Gly Ser Ile Glu Met Gln Val Val Ala Gly

1235   1240   1245   1250

Gly Asp Val Ser Val Val Thr Gly His His Gln Glu Pro Ala Ser Ser

              1255   1260   1265

Ser Leu Ser Phe Thr Gly Leu Thr Ser Thr Ser Ile Phe Gln Asp Asp

          1270   1275   1280

Leu Gly Pro Pro Gln Cys Lys Ser Ile Thr Leu Glu Arg Gly Pro Asp

          1285   1290   1295

Gly Leu Gly Phe Ser Ile Val Gly Gly Tyr Gly Ser Pro His Gly Asp

   1300   1305   1310

Leu Pro Ile Tyr Val Lys Thr Val Phe Ala Lys Gly Ala Ala Ser Glu

1315   1320   1325   1330

Asp Gly Arg Leu Lys Arg Gly Asp Gln Ile Ile Ala Val Asn Gly Gln

       1335   1340   1345

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       1350   1355   1360

Thr Lys Gly Thr Val Thr Leu Met Val Leu Ser

    1365   1370

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<212> PRT

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Ala Lys Gly Asn Ser Ser Leu Gly Met Thr Val Ser Ala Asn Lys Asp

      20   25   30

Gly Leu Gly Met Ile Val Arg Ser Ile Ile His Gly Gly Ala Ile Ser

   35   40   45

Arg Asp Gly Arg Ile Ala Ile Gly Asp Cys Ile Leu Ser Ile Asn Glu

   50   55   60

Glu Ser Thr Ile Ser Val Thr Asn Ala Gln Ala Arg Ala Met Leu Arg

65   70   75   80

Arg His Ser Leu Ile Gly Pro Asp Ile Lys Ile Thr Tyr Val Pro Ala
              85   90   95

Glu His Leu Glu Glu Phe Lys Ile Ser Leu Gly Gln Gln Ser Gly Arg
              100   105   110

Val Met Ala Leu Asp Ile Phe Ser Ser Tyr Thr Gly Arg Asp Ile Pro
              115   120   125

Glu Leu Pro Glu Arg Glu Glu Gly Glu Gly Glu Glu Ser Glu Leu Gln
           130   135   140

Asn Thr Ala Tyr Ser Asn Trp Asn Gln Pro Arg Arg Val Glu Leu Trp
145   150   155   160

Arg Glu Pro Ser Lys Ser Leu Gly Ile Ser Ile Val Gly Gly Arg Gly
              165   170   175

Met Gly Ser Arg Leu Ser Asn Gly Glu Val Met Arg Gly Ile Phe Ile
              180   185   190

Lys His Val Leu Glu Asp Ser Pro Ala Gly Lys Asn Gly Thr Leu Lys
           195   200   205

Pro Gly Asp Arg Ile Val Glu Ala Pro Ser Gln Ser Glu Ser Glu Pro
           210   215   220

Glu Lys Ala Pro Leu Cys Ser Val Pro Pro Pro Pro Ser Ala Phe
225   230   235   240

Ala Glu Met Gly Ser Asp His Thr Gln Ser Ser Ala Ser Lys Ile Ser
              245   250   255

Gln Asp Val Asp Lys Glu Asp Glu Phe Gly Tyr Ser Trp Lys Asn Ile
              260   265   270

Arg Glu Arg Tyr Gly Thr Leu Thr Gly Glu Leu His Met Ile Glu Leu
           275   280   285

Glu Lys Gly His Ser Gly Leu Gly Leu Ser Leu Ala Gly Asn Lys Asp

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                290                    295                    300
Arg Ser Arg Met Ser Val Phe Ile Val Gly Ile Asp Pro Asn Gly Ala
305                 310                    315                    320
Ala Gly Lys Asp Gly Arg Leu Gln Ile Ala Asp Glu Leu Leu Glu Ile
                    325                    330                    335
Asn Gly Gln Ile Leu Tyr Gly Arg Ser His Gln Asn Ala Ser Ser Ile
                    340                    345                    350
Ile Lys Cys Ala Pro Ser Lys Val Lys Ile Ile Phe Ile Arg Asn Lys
                355                    360                    365
Asp Ala Val Asn Gln Met Ala Val Cys Pro Gly Asn Ala Val Glu Pro
    370                    375                    380
Leu Pro Ser Asn Ser Glu Asn Leu Gln Asn Lys Glu Thr Glu Pro Thr
385                 390                    395                    400
Val Thr Thr Ser Asp Ala Ala Val Asp Leu Ser Ser Phe Lys Asn Val
                    405                    410                    415
Gln His Leu Glu Leu Pro Lys Asp Gln Gly Gly Leu Gly Ile Ala Ile
                    420                    425                    430
Ser Glu Glu Asp Thr Leu Ser Gly Val Ile Ile Lys Ser Leu Thr Glu
                435                    440                    445
His Gly Val Ala Ala Thr Asp Gly Arg Leu Lys Val Gly Asp Gln Ile
    450                    455                    460
Leu Ala Val Asp Asp Glu Ile Val Val Gly Tyr Pro Ile Glu Lys Phe
465                 470                    475                    480
Ile Ser Leu Leu Lys Thr Ala Lys Met Thr Val Lys Leu Thr Ile His
                485                    490                    495
Ala Glu Asn Pro Asp Ser Gln Ala Val Pro Ser Ala Ala Gly Ala Ala
                500                    505                    510
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Ser Gly Glu Lys Lys Asn Ser Ser Gln Ser Leu Met Val Pro Gln Ser
            515   520   525

Gly Ser Pro Glu Pro Glu Ser Ile Arg Asn Thr Ser Arg Ser Ser Thr
            530   535   540

Pro Ala Ile Phe Ala Ser Asp Pro Ala Thr Cys Pro Ile Ile Pro Gly
545   550   555   560

Cys Glu Thr Thr Ile Glu Ile Ser Lys Gly Arg Thr Gly Leu Gly Leu
                565   570   575

Ser Ile Val Gly Gly Ser Asp Thr Leu Leu Gly Ala Phe Ile Ile His
            580   585   590

Glu Val Tyr Glu Glu Gly Ala Ala Cys Lys Asp Gly Arg Leu Trp Ala
            595   600   605

Gly Asp Gln Ile Leu Glu Val Asn Gly Ile Asp Leu Arg Lys Ala Thr
            610   615   620

His Asp Glu Ala Ile Asn Val Leu Arg Gln Thr Pro Gln Arg Val Arg
625   630   635   640

Leu Thr Leu Tyr Arg Asp Glu Ala Pro Tyr Lys Glu Glu Glu Val Cys
                645   650   655

Asp Thr Leu Thr Ile Glu Leu Gln Lys Lys Pro Gly Lys Gly Leu Gly
            660   665   670

Leu Ser Ile Val Gly Lys Arg Asn Asp Thr Gly Val Phe Val Ser Asp
            675   680   685

Ile Val Lys Gly Gly Ile Ala Asp Pro Asp Gly Arg Leu Ile Gln Gly
    690   695   700

Asp Gln Ile Leu Leu Val Asn Gly Glu Asp Val Arg Asn Ala Ser Gln
705   710   715   720

Glu Ala Val Ala Ala Leu Leu Lys Cys Ser Leu Gly Thr Val Thr Leu

```
                 725                    730                    735
Glu Val Gly Arg Ile Lys Ala Gly Pro Phe His Ser Glu Arg Arg Pro
            740                    745                    750
Ser Gln Thr Ser Gln Val Ser Glu Gly Ser Leu Ser Ser Phe Thr Phe
        755                    760                    765
Pro Leu Ser Gly Ser Ser Thr Ser Glu Ser Leu Glu Ser Ser Ser Lys
        770                    775                    780
Lys Asn Ala Leu Ala Ser Glu Ile Gln Gly Leu Arg Thr Val Glu Met
785                    790                    795                    800
Lys Lys Gly Pro Thr Asp Ser Leu Gly Ile Ser Ile Ala Gly Gly Val
                 805                    810                    815
Gly Ser Pro Leu Gly Asp Val Pro Ile Phe Ile Ala Met Met His Pro
            820                    825                    830
Thr Gly Val Ala Ala Gln Thr Gln Lys Leu Arg Val Gly Asp Arg Ile
            835                    840                    845
Val Thr Ile Cys Gly Thr Ser Thr Glu Gly Met Thr His Thr Gln Ala
        850                    855                    860
Val Asn Leu Leu Lys Asn Ala Ser Gly Ser Ile Glu Met Gln Val Val
865                    870                    875                    880
Ala Gly Gly Asp Val Ser Val Val Thr Gly His His Gln Glu Pro Ala
                 885                    890                    895
Ser Ser Ser Leu Ser Phe Thr Gly Leu Thr Ser Thr Ser Ile Phe Gln
            900                    905                    910
Asp Asp Leu Gly Pro Pro Gln Cys Lys Ser Ile Thr Leu Glu Arg Gly
            915                    920                    925
Pro Asp Gly Leu Gly Phe Ser Ile Val Gly Gly Tyr Gly Ser Pro His
        930                    935                    940
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Gly Asp Leu Pro Ile Tyr Val Lys Thr Val Phe Ala Lys Gly Ala Ala

945   950   955   960

Ser Glu Asp Gly Arg Leu Lys Arg Gly Asp Gln Ile Ile Ala Val Asn

                965   970   975

Gly Gln Ser Leu Glu Gly Val Thr His Glu Glu Ala Val Ala Ile Leu

                980   985   990

Lys Arg Thr Lys Gly Thr Val Thr Leu Met Val Leu Ser

        995   1000   1005

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<211> 4880

<212> DNA

<213> Homo sapience

<220>

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ttggacacag cgggaagctc ttcagtggag acgagctatt ggaaaataag taacgcattc   120

agatgtttaa aatcacagag aatacaaaga taaagaatgg aaaagggtct ccttcctgtc   180

ccaattcatc cagttctcat cacccttcat taggtaaatg gcataacttt acttggggaa   240

```
aatcaccaag atgtggtgaa tatcttaaaa gaactgccta tagaagtgac a atg gtg      297
                                                              Met Val
                                                               1
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```
tgc tgt cgt cga act gtg cca ccc acc acc caa tca gaa ttg gat agc      345
Cys Cys Arg Arg Thr Val Pro Pro Thr Thr Gln Ser Glu Leu Asp Ser
         5                   10                  15
```

```
ctg gac tta tgt gat att gag cta aca gaa aag cct cac gta gat cta      393
Leu Asp Leu Cys Asp Ile Glu Leu Thr Glu Lys Pro His Val Asp Leu
         20                  25                  30
```

```
ggt gag ttc atc ggg tca tca gag aca gag gat cca gtg ctg gcg atg      441
Gly Glu Phe Ile Gly Ser Ser Glu Thr Glu Asp Pro Val Leu Ala Met
 35                  40                  45                  50
```

```
act gat gcg ggt cag agt aca gaa gag gtt caa gca cct ttg gcc atg      489
Thr Asp Ala Gly Gln Ser Thr Glu Glu Val Gln Ala Pro Leu Ala Met
                 55                  60                  65
```

```
tgg gag gct ggc att cag cac ata gag ctg gag aaa ggg agc aaa gga      537
Trp Glu Ala Gly Ile Gln His Ile Glu Leu Glu Lys Gly Ser Lys Gly
             70                  75                  80
```

```
ctt ggt ttt agc att tta gat tat cag gat cca att gat cca gca agc      585
Leu Gly Phe Ser Ile Leu Asp Tyr Gln Asp Pro Ile Asp Pro Ala Ser
             85                  90                  95
```

act gtg att ata att cgt tct ttg gtg cct ggc ggc att gct gaa aag   633
Thr Val Ile Ile Ile Arg Ser Leu Val Pro Gly Gly Ile Ala Glu Lys
    100   105   110

gat gga cga ctt ctt cct ggt gac cga ctc atg ttt gta aac gat gtt   681
Asp Gly Arg Leu Leu Pro Gly Asp Arg Leu Met Phe Val Asn Asp Val
115   120   125   130

aac ttg gaa aac agc agt ctt gag gaa gct gta gaa gca ctg aag gga   729
Asn Leu Glu Asn Ser Ser Leu Glu Glu Ala Val Glu Ala Leu Lys Gly
              135   140   145

gca ccg tca ggg act gtg aga ata gga gtt gct aag cct tta ccc ctt   777
Ala Pro Ser Gly Thr Val Arg Ile Gly Val Ala Lys Pro Leu Pro Leu
              150   155   160

tca cca gaa gaa ggt tat gtt tct gct aag gag gat tcc ttt ctc tac   825
Ser Pro Glu Glu Gly Tyr Val Ser Ala Lys Glu Asp Ser Phe Leu Tyr
        165   170   175

cca cca cac tcc tgt gag gaa gca ggg ctg gct gac aaa ccc ctc ttc   873
Pro Pro His Ser Cys Glu Glu Ala Gly Leu Ala Asp Lys Pro Leu Phe
        180   185   190

agg gct gac ttg gct ctg gtg ggc aca aat gat gct gac tta gta gat   921
Arg Ala Asp Leu Ala Leu Val Gly Thr Asn Asp Ala Asp Leu Val Asp

195   200   205   210

gaa tcc aca ttt gag tct cca tac tct cct gaa aat gac agc atc tac   969
Glu Ser Thr Phe Glu Ser Pro Tyr Ser Pro Glu Asn Asp Ser Ile Tyr
              215   220   225

tct act caa gcc tct att tta tct ctt cat ggc agt tct tgt ggt gat   1017
Ser Thr Gln Ala Ser Ile Leu Ser Leu His Gly Ser Ser Cys Gly Asp
              230   235   240

ggc ctg aac tat ggt tct tcc ctt cca tca tct cct cct aag gat gtt   1065
Gly Leu Asn Tyr Gly Ser Ser Leu Pro Ser Ser Pro Pro Lys Asp Val
              245   250   255

att gaa aat tct tgt gat cca gta ctt gat ctg cat atg tct ctg gag   1113
Ile Glu Asn Ser Cys Asp Pro Val Leu Asp Leu His Met Ser Leu Glu
         260   265   270

gaa cta tat acc cag aat ctc ctg gaa aga cag gat gag aat aca cct   1161
Glu Leu Tyr Thr Gln Asn Leu Leu Glu Arg Gln Asp Glu Asn Thr Pro
275   280   285   290

tcg gtg gac ata agt atg ggg cct gct tct ggc ttt act ata aat gac   1209
Ser Val Asp Ile Ser Met Gly Pro Ala Ser Gly Phe Thr Ile Asn Asp
              295   300   305

tac aca cct gca aat gct att gaa caa caa tat gaa tgt gaa aac aca   1257

Tyr Thr Pro Ala Asn Ala Ile Glu Gln Gln Tyr Glu Cys Glu Asn Thr
            310   315   320

ata gtg tgg act gaa tct cat tta cca agt gaa gtt ata tca agt gca   1305
Ile Val Trp Thr Glu Ser His Leu Pro Ser Glu Val Ile Ser Ser Ala
            325   330   335

gaa ctt cct tct gtg cta ccc gat tca gct gga aag ggc tct gag cac   1353
Glu Leu Pro Ser Val Leu Pro Asp Ser Ala Gly Lys Gly Ser Glu His
            340   345   350

ctg ctt gaa cag agc tcc ctg gcc tgt aat gct gag tgt gtc atg ctt   1401
Leu Leu Glu Gln Ser Ser Leu Ala Cys Asn Ala Glu Cys Val Met Leu
355   360   365   370

caa aat gta tct aaa gaa tct ttt gaa agg act att aat ata gca aaa   1449
Gln Asn Val Ser Lys Glu Ser Phe Glu Arg Thr Ile Asn Ile Ala Lys
                375   380   385

ggc aat tct agc cta gga atg aca gtt agt gct aat aaa gat ggc ttg   1497
Gly Asn Ser Ser Leu Gly Met Thr Val Ser Ala Asn Lys Asp Gly Leu
            390   395   400

ggg atg atc gtt cga agc att att cat gga ggt gcc att agt cga gat   1545
Gly Met Ile Val Arg Ser Ile Ile His Gly Gly Ala Ile Ser Arg Asp
            405   410   415

```
ggc cgg att gcc att ggg gac tgc atc ttg tcc att aat gaa gag tct      1593
Gly Arg Ile Ala Ile Gly Asp Cys Ile Leu Ser Ile Asn Glu Glu Ser
    420             425             430


acc atc agt gta acc aat gcc cag gca cga gct atg ttg aga aga cat      1641
Thr Ile Ser Val Thr Asn Ala Gln Ala Arg Ala Met Leu Arg Arg His
435             440             445             450


tct ctc att ggc cct gac ata aaa att act tat gtg cct gca gaa cat      1689
Ser Leu Ile Gly Pro Asp Ile Lys Ile Thr Tyr Val Pro Ala Glu His
            455             460             465


ttg gaa gag ttc aaa ata agc ttg gga caa caa tct gga aga gta atg      1737
Leu Glu Glu Phe Lys Ile Ser Leu Gly Gln Gln Ser Gly Arg Val Met
            470             475             480


gca ctg gat att ttt tct tca tac act ggc aga gac att cca gaa tta      1785
Ala Leu Asp Ile Phe Ser Ser Tyr Thr Gly Arg Asp Ile Pro Glu Leu
            485             490             495


cca gag cga gaa gag gga gag ggt gaa gaa agc gaa ctt caa aac aca      1833
Pro Glu Arg Glu Glu Gly Glu Gly Glu Glu Ser Glu Leu Gln Asn Thr
    500             505             510


gca tat agc aat tgg aat cag ccc agg cgg gtg gaa ctc tgg aga gaa      1881
Ala Tyr Ser Asn Trp Asn Gln Pro Arg Arg Val Glu Leu Trp Arg Glu
    515             520             525             530
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cca agc aaa tcc tta ggc atc agc att gtt ggt gga cga ggg atg ggg   1929
Pro Ser Lys Ser Leu Gly Ile Ser Ile Val Gly Gly Arg Gly Met Gly
                535   540   545

agt cgg cta agc aat gga gaa gtg atg agg ggc att ttc atc aaa cat   1977
Ser Arg Leu Ser Asn Gly Glu Val Met Arg Gly Ile Phe Ile Lys His
            550   555   560

gtt ctg gaa gat agt cca gct ggc aaa aat gga acc ttg aaa cct gga   2025
Val Leu Glu Asp Ser Pro Ala Gly Lys Asn Gly Thr Leu Lys Pro Gly
        565   570   575

gat aga atc gta gag gca ccc agt cag tca gag tca gag cca gag aag   2073
Asp Arg Ile Val Glu Ala Pro Ser Gln Ser Glu Ser Glu Pro Glu Lys
    580   585   590

gct cca ttg tgc agt gtg ccc cca ccc cct cct tca gcc ttt gcc gaa   2121
Ala Pro Leu Cys Ser Val Pro Pro Pro Pro Ser Ala Phe Ala Glu
595   600   605   610

atg ggt agt gat cac aca cag tca tct gca agc aaa atc tca caa gat   2169
Met Gly Ser Asp His Thr Gln Ser Ser Ala Ser Lys Ile Ser Gln Asp
                615   620   625

gtg gac aaa gag gat gag ttt ggt tac agc tgg aaa aat atc aga gag   2217
Val Asp Lys Glu Asp Glu Phe Gly Tyr Ser Trp Lys Asn Ile Arg Glu

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                    630                  635                  640

cgt tat gga acc cta aca ggc gag ctg cat atg att gaa ctg gag aaa        2265
Arg Tyr Gly Thr Leu Thr Gly Glu Leu His Met Ile Glu Leu Glu Lys
         645                  650                  655


ggt cat agt ggt ttg ggc cta agt ctt gct ggg aac aaa gac cga tcc        2313
Gly His Ser Gly Leu Gly Leu Ser Leu Ala Gly Asn Lys Asp Arg Ser
         660                  665                  670


agg atg agt gtc ttc ata gtg ggg att gat cca aat gga gct gca gga        2361
Arg Met Ser Val Phe Ile Val Gly Ile Asp Pro Asn Gly Ala Ala Gly
675                  680                  685                  690


aaa gat ggt cga ttg caa att gca gat gag ctt cta gag atc aat ggt        2409
Lys Asp Gly Arg Leu Gln Ile Ala Asp Glu Leu Leu Glu Ile Asn Gly
                  695                  700                  705


cag att tta tat gga aga agt cat cag aat gcc tca tca atc att aaa        2457
Gln Ile Leu Tyr Gly Arg Ser His Gln Asn Ala Ser Ser Ile Ile Lys
                  710                  715                  720


tgt gcc cct tct aaa gtg aaa ata att ttt atc aga aat aaa gat gca        2505
Cys Ala Pro Ser Lys Val Lys Ile Ile Phe Ile Arg Asn Lys Asp Ala
         725                  730                  735


gtg aat cag atg gcc gta tgt cct gga aat gca gta gaa cct ttg cct        2553
```

```
Val Asn Gln Met Ala Val Cys Pro Gly Asn Ala Val Glu Pro Leu Pro
    740                 745                 750


tct aac tca gaa aat ctt caa aat aag gag aca gag cca act gtt act      2601
Ser Asn Ser Glu Asn Leu Gln Asn Lys Glu Thr Glu Pro Thr Val Thr
755                 760                 765                 770


act tct gat gca gct gtg gac ctc agt tca ttt aaa aat gtg caa cat      2649
Thr Ser Asp Ala Ala Val Asp Leu Ser Ser Phe Lys Asn Val Gln His
                775                 780                 785


ctg gag ctt ccc aag gat cag ggg ggt ttg ggt att gct atc agc gaa      2697
Leu Glu Leu Pro Lys Asp Gln Gly Gly Leu Gly Ile Ala Ile Ser Glu
                790                 795                 800


gaa gat aca ctc agt gga gtc atc ata aag agc tta aca gag cat ggg      2745
Glu Asp Thr Leu Ser Gly Val Ile Ile Lys Ser Leu Thr Glu His Gly
            805                 810                 815


gta gca gcc acg gat gga cga ctc aaa gtc gga gat cag ata ctg gct      2793
Val Ala Ala Thr Asp Gly Arg Leu Lys Val Gly Asp Gln Ile Leu Ala
    820                 825                 830


gta gat gat gaa att gtt gtt ggt tac cct att gaa aag ttt att agc      2841
Val Asp Asp Glu Ile Val Val Gly Tyr Pro Ile Glu Lys Phe Ile Ser
835                 840                 845                 850
```

```
ctt ctg aag aca gca aag atg aca gta aaa ctt acc atc cat gct gag      2889
Leu Leu Lys Thr Ala Lys Met Thr Val Lys Leu Thr Ile His Ala Glu
            855               860               865


aat cca gat tcc cag gct gtt cct tca gca gct ggt gca gcc agt gga      2937
Asn Pro Asp Ser Gln Ala Val Pro Ser Ala Ala Gly Ala Ala Ser Gly
            870               875               880


gaa aaa aag aac agc tcc cag tct ctg atg gtc cca cag tct ggc tcc      2985
Glu Lys Lys Asn Ser Ser Gln Ser Leu Met Val Pro Gln Ser Gly Ser
            885               890               895


cca gaa ccg gag tcc atc cga aat aca agc aga tca tca aca cca gca      3033
Pro Glu Pro Glu Ser Ile Arg Asn Thr Ser Arg Ser Ser Thr Pro Ala
        900               905               910


att ttt gct tct gat cct gca acc tgc ccc att atc cct ggc tgc gaa      3081
Ile Phe Ala Ser Asp Pro Ala Thr Cys Pro Ile Ile Pro Gly Cys Glu
915               920               925               930


aca acc atc gag att tcc aaa ggg cga aca ggg ctg ggc ctg agc atc      3129
Thr Thr Ile Glu Ile Ser Lys Gly Arg Thr Gly Leu Gly Leu Ser Ile
            935               940               945


gtt ggg ggt tca gac acg ctg ctg ggt gcc ttt att atc cat gaa gtt      3177
Val Gly Gly Ser Asp Thr Leu Leu Gly Ala Phe Ile Ile His Glu Val
            950               955               960
```

```
tat gaa gaa gga gca gca tgt aaa gat gga aga ctc tgg gct gga gat      3225
Tyr Glu Glu Gly Ala Ala Cys Lys Asp Gly Arg Leu Trp Ala Gly Asp
        965             970             975


cag atc tta gag gtg aat gga att gac ttg agg aag gcc aca cat gat      3273
Gln Ile Leu Glu Val Asn Gly Ile Asp Leu Arg Lys Ala Thr His Asp
        980             985             990


gaa gca atc aat gtc ctg aga cag acg cca cag aga gtg cgc ctg aca      3321
Glu Ala Ile Asn Val Leu Arg Gln Thr Pro Gln Arg Val Arg Leu Thr
995             1000            1005            1010


ctc tac aga gat gag gcc cca tac aaa gag gag gaa gtg tgt gac acc      3369
Leu Tyr Arg Asp Glu Ala Pro Tyr Lys Glu Glu Glu Val Cys Asp Thr
                1015            1020            1025


ctc act att gag ctg cag aag aag ccg gga aaa ggc cta gga tta agt      3417
Leu Thr Ile Glu Leu Gln Lys Lys Pro Gly Lys Gly Leu Gly Leu Ser
                1030            1035            1040


att gtt ggt aaa aga aac gat act gga gta ttt gtg tca gac att gtc      3465
Ile Val Gly Lys Arg Asn Asp Thr Gly Val Phe Val Ser Asp Ile Val
                1045            1050            1055


aaa gga gga att gca gat ccc gat gga aga ctg atc cag gga gac cag      3513
Lys Gly Gly Ile Ala Asp Pro Asp Gly Arg Leu Ile Gln Gly Asp Gln
```

1060   1065   1070

```
ata tta ttg gtg aat ggg gaa gac gtt cgt aat gcc tcc caa gaa gcg     3561
Ile Leu Leu Val Asn Gly Glu Asp Val Arg Asn Ala Ser Gln Glu Ala
1075            1080            1085            1090
```

```
gtt gcc gct ttg cta aag tgt tcc cta ggc aca gta acc ttg gaa gtt     3609
Val Ala Ala Leu Leu Lys Cys Ser Leu Gly Thr Val Thr Leu Glu Val
                1095            1100            1105
```

```
gga aga atc aaa gct ggt cca ttc cat tca gag agg agg cca tct caa     3657
Gly Arg Ile Lys Ala Gly Pro Phe His Ser Glu Arg Arg Pro Ser Gln
                1110            1115            1120
```

```
acc agc cag gtg agt gaa ggc agc ctg tct tct ttc act ttt cca ctc     3705
Thr Ser Gln Val Ser Glu Gly Ser Leu Ser Ser Phe Thr Phe Pro Leu
            1125            1130            1135
```

```
tct gga tcc agt aca tct gag tca ctg gaa agt agc tca aag aag aat     3753
Ser Gly Ser Ser Thr Ser Glu Ser Leu Glu Ser Ser Ser Lys Lys Asn
            1140            1145            1150
```

```
gca ttg gca tct gaa ata cag gga tta aga aca gtc gaa atg aaa aag     3801
Ala Leu Ala Ser Glu Ile Gln Gly Leu Arg Thr Val Glu Met Lys Lys
1155            1160            1165            1170
```

```
ggc cct act gac tca ctg gga atc agc atc gct gga gga gta ggc agc     3849
```

Gly Pro Thr Asp Ser Leu Gly Ile Ser Ile Ala Gly Gly Val Gly Ser

          1175   1180   1185

cca ctt ggt gat gtg cct ata ttt att gca atg atg cac cca act gga   3897

Pro Leu Gly Asp Val Pro Ile Phe Ile Ala Met Met His Pro Thr Gly

          1190   1195   1200

gtt gca gca cag acc caa aaa ctc aga gtt ggg gat agg att gtc acc   3945

Val Ala Ala Gln Thr Gln Lys Leu Arg Val Gly Asp Arg Ile Val Thr

          1205   1210   1215

atc tgt ggc aca tcc act gag ggc atg act cac acc caa gca gtt aac   3993

Ile Cys Gly Thr Ser Thr Glu Gly Met Thr His Thr Gln Ala Val Asn

          1220   1225   1230

cta ctg aaa aat gca tct ggc tcc att gaa atg cag gtg gtt gct gga   4041

Leu Leu Lys Asn Ala Ser Gly Ser Ile Glu Met Gln Val Val Ala Gly

1235   1240   1245   1250

gga gac gtg agt gtg gtc aca ggt cat cat cag gag cct gca agt tcc   4089

Gly Asp Val Ser Val Val Thr Gly His His Gln Glu Pro Ala Ser Ser

          1255   1260   1265

agt ctt tct ttc act ggg ctg acg tca acc agt ata ttt cag gat gat   4137

Ser Leu Ser Phe Thr Gly Leu Thr Ser Thr Ser Ile Phe Gln Asp Asp

          1270   1275   1280

```
tta gga cct cct caa tgt aag tct att aca cta gag cga gga cca gat      4185
Leu Gly Pro Pro Gln Cys Lys Ser Ile Thr Leu Glu Arg Gly Pro Asp
         1285              1290              1295


ggc tta ggc ttc agt ata gtt gga gga tat ggc agc cct cat gga gac      4233
Gly Leu Gly Phe Ser Ile Val Gly Gly Tyr Gly Ser Pro His Gly Asp
         1300              1305              1310


tta ccc att tat gtt aaa aca gtg ttt gca aag gga gca gcc tct gaa      4281
Leu Pro Ile Tyr Val Lys Thr Val Phe Ala Lys Gly Ala Ala Ser Glu
1315              1320              1325              1330


gac gga cgt ctg aaa agg ggc gat cag atc att gct gtc aat ggg cag      4329
Asp Gly Arg Leu Lys Arg Gly Asp Gln Ile Ile Ala Val Asn Gly Gln
              1335              1340              1345


agt cta gaa gga gtc acc cat gaa gaa gct gtt gcc atc ctt aaa cgg      4377
Ser Leu Glu Gly Val Thr His Glu Glu Ala Val Ala Ile Leu Lys Arg
              1350              1355              1360


aca aaa ggc act gtc act ttg atg gtt ctc tct tgaattggct gccagaattg    4430
Thr Lys Gly Thr Val Thr Leu Met Val Leu Ser
         1365              1370


aaccaaccca acccctagct cacctcctac tgtaaagaga atgcactggt cctgacaatt    4490


tttatgctgt gttcagccgg gtcttcaaaa ctgtaggggg gaaataacac ttaagtttct    4550
```

```
ttttctcatc tagaaatgct ttccttactg acaacctaac atcatttttc ttttcttctt    4610

gcattttgtg aacttaaaga gaaggaatat ttgtgtaggt gaatctcgtt tttatttgtg    4670

gagatatcta atgttttgta gtcacatggg caagaattat tacatgctaa gctggttagt    4730

ataaagaaag ataattctaa agctaaccaa agaaaatggc ttcagtaagt taggatgaaa    4790

aatgaaaata taaaataaag aagaaaatct cggggagttt aaaaaaaatg cctcaatttg    4850

gcaatctacc tcctctcccc accccaaact
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<210> 4

<211> 90

<212> PRT

<213> Homo sapience

<400> 4

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Ala Gly Ile Gln His Ile Glu Leu Glu Lys Gly Ser Lys Gly Leu Gly
 1               5                   10                  15

Phe Ser Ile Leu Asp Tyr Gln Asp Pro Ile Asp Pro Ala Ser Thr Val
                20                  25                  30

Ile Ile Ile Arg Ser Leu Val Pro Gly Gly Ile Ala Glu Lys Asp Gly
                35                  40                  45

Arg Leu Leu Pro Gly Asp Arg Leu Met Phe Val Asn Asp Val Asn Leu
        50                  55                  60
```

Glu Asn Ser Ser Leu Glu Glu Ala Val Glu Ala Leu Lys Gly Ala Pro

65   70   75   80

Ser Gly Thr Val Arg Ile Gly Val Ala Lys

                    85   90

<210> 5

<211> 91

<212> PRT

<213> Homo sapience

<400> 5

Gln Asn Val Ser Lys Glu Ser Phe Glu Arg Thr Ile Asn Ile Ala Lys

1   5   10   15

Gly Asn Ser Ser Leu Gly Met Thr Val Ser Ala Asn Lys Asp Gly Leu

                    20   25   30

Gly Met Ile Val Arg Ser Ile Ile His Gly Gly Ala Ile Ser Arg Asp

          35   40   45

Gly Arg Ile Ala Ile Gly Asp Cys Ile Leu Ser Ile Asn Glu Glu Ser

          50   55   60

Thr Ile Ser Val Thr Asn Ala Gln Ala Arg Ala Met Leu Arg Arg His

65   70   75   80

Ser Leu Ile Gly Pro Asp Ile Lys Ile Thr Tyr

                    85   90

<210> 6

<211> 96

<212> PRT

<213> Homo sapience

<400> 6

Asn Gln Pro Arg Arg Val Glu Leu Trp Arg Glu Pro Ser Lys Ser Leu
1   5   10   15

Gly Ile Ser Ile Val Gly Gly Arg Gly Met Gly Ser Arg Leu Ser Asn
            20   25   30

Gly Glu Val Met Arg Gly Ile Phe Ile Lys His Val Leu Glu Asp Ser
            35   40   45

Pro Ala Gly Lys Asn Gly Thr Leu Lys Pro Gly Asp Arg Ile Val Glu
        50   55   60

Ala Pro Ser Gln Ser Glu Ser Glu Pro Glu Lys Ala Pro Leu Cys Ser
65   70   75   80

Val Pro Pro Pro Pro Pro Ser Ala Phe Ala Glu Met Gly Ser Asp His
                85   90   95

<210> 7

<211> 86

<212> PRT

<213> Homo sapience

<400> 7

Gly Glu Leu His Met Ile Glu Leu Glu Lys Gly His Ser Gly Leu Gly
1   5   10   15

Leu Ser Leu Ala Gly Asn Lys Asp Arg Ser Arg Met Ser Val Phe Ile
            20   25   30

Val Gly Ile Asp Pro Asn Gly Ala Ala Gly Lys Asp Gly Arg Leu Gln

```
            35                  40                  45
Ile Ala Asp Glu Leu Leu Glu Ile Asn Gly Gln Ile Leu Tyr Gly Arg
       50                  55                  60
Ser His Gln Asn Ala Ser Ser Ile Ile Lys Cys Ala Pro Ser Lys Val
65                  70                  75                  80
Lys Ile Ile Phe Ile Arg
                    85
```

<210> 8

<211> 84

<212> PRT

<213> Homo sapience

<400> 8

```
Lys Asn Val Gln His Leu Glu Leu Pro Lys Asp Gln Gly Gly Leu Gly
1                   5                   10                  15
Ile Ala Ile Ser Glu Glu Asp Thr Leu Ser Gly Val Ile Ile Lys Ser
              20                  25                  30
Leu Thr Glu His Gly Val Ala Ala Thr Asp Gly Arg Leu Lys Val Gly
          35                  40                  45
Asp Gln Ile Leu Ala Val Asp Asp Glu Ile Val Val Gly Tyr Pro Ile
       50                  55                  60
Glu Lys Phe Ile Ser Leu Leu Lys Thr Ala Lys Met Thr Val Lys Leu
65                  70                  75                  80
Thr Ile His Ala
```

<210> 9

<211> 86

<212> PRT

<213> Homo sapience

<400> 9

Gly Cys Glu Thr Thr Ile Glu Ile Ser Lys Gly Arg Thr Gly Leu Gly

1   5   10   15

Leu Ser Ile Val Gly Gly Ser Asp Thr Leu Leu Gly Ala Phe Ile Ile

                20   25   30

His Glu Val Tyr Glu Glu Gly Ala Ala Cys Lys Asp Gly Arg Leu Trp

            35   40   45

Ala Gly Asp Gln Ile Leu Glu Val Asn Gly Ile Asp Leu Arg Lys Ala

        50   55   60

Thr His Asp Glu Ala Ile Asn Val Leu Arg Gln Thr Pro Gln Arg Val

65   70   75   80

Arg Leu Thr Leu Tyr Arg

                85

<210> 10

<211> 85

<212> PRT

<213> Homo sapience

<400> 10

Cys Asp Thr Leu Thr Ile Glu Leu Gln Lys Lys Pro Gly Lys Gly Leu

1   5   10   15

Gly Leu Ser Ile Val Gly Lys Arg Asn Asp Thr Gly Val Phe Val Ser

```
                 20                    25                    30
Asp Ile Val Lys Gly Gly Ile Ala Asp Pro Asp Gly Arg Leu Ile Gln

            35                    40                    45
Gly Asp Gln Ile Leu Leu Val Asn Gly Glu Asp Val Arg Asn Ala Ser

        50                    55                    60
Gln Glu Ala Val Ala Ala Leu Leu Lys Cys Ser Leu Gly Thr Val Thr

    65                    70                    75                    80
Leu Glu Val Gly Arg

                 85
```

<210> 11

<211> 89

<212> PRT

<213> Homo sapience

<400> 11

```
Gln Gly Leu Arg Thr Val Glu Met Lys Lys Gly Pro Thr Asp Ser Leu
    1                 5                    10                    15
Gly Ile Ser Ile Ala Gly Gly Val Gly Ser Pro Leu Gly Asp Val Pro
                 20                    25                    30
Ile Phe Ile Ala Met Met His Pro Thr Gly Val Ala Ala Gln Thr Gln
            35                    40                    45
Lys Leu Arg Val Gly Asp Arg Ile Val Thr Ile Cys Gly Thr Ser Thr
        50                    55                    60
Glu Gly Met Thr His Thr Gln Ala Val Asn Leu Leu Lys Asn Ala Ser
    65                    70                    75                    80
Gly Ser Ile Glu Met Gln Val Val Ala
```

85

<210> 12

<211> 88

<212> PRT

<213> Homo sapience

<400> 12

Pro Gln Cys Lys Ser Ile Thr Leu Glu Arg Gly Pro Asp Gly Leu Gly

1   5   10   15

Phe Ser Ile Val Gly Gly Tyr Gly Ser Pro His Gly Asp Leu Pro Ile

              20   25   30

Tyr Val Lys Thr Val Phe Ala Lys Gly Ala Ala Ser Glu Asp Gly Arg

          35   40   45

Leu Lys Arg Gly Asp Gln Ile Ile Ala Val Asn Gly Gln Ser Leu Glu

      50   55   60

Gly Val Thr His Glu Glu Ala Val Ala Ile Leu Lys Arg Thr Lys Gly

65   70   75   80

Thr Val Thr Leu Met Val Leu Ser

              85

<210> 13

<211> 184

<212> DNA

<213> Homo sapience

<400> 132

gctattttga aaatatattt atatctacga aaagaattgg gaaaacaaat atttaatcag   60

agaattattc cttaaagatt taaaatgtat ttagttgtac attttatatg ggttcacccc   120

agcacatgaa gtataatggt cagatttatt tngtatttat ttactattat aaccactttt   180

tagg   184

<210> 14

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 14

ctccccatcc ctcgtccacc   20

<210> 15

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 15

ctctgactct gactgactgg   20

<210> 16

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 16

atgagtttgg ttacagctgg   20

<210> 17

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 17

tcagagagcg ttatggaacc   20

<210> 18

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 18

agtcttgctg ggaacaaaga   20

<210> 19

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 19

actgttacta cttctgatgc   20

<210> 20

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 20

tctgatggtc ccacagtctg   20

<210> 21

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 21

gttgtttcgc agccagggat   20

<210> 22

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 22

ctgagcatcg ttgggggttc   20

<210> 23

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 23

cctcatctct gtagagtgtc   20

<210> 24

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 24

tgttagcccc ctcactaagg   20

<210> 25

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 25

gctatgtgct aggaaatacg   20

<210> 26

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 26

tagggagaag gatcagagcg   20

<210> 27

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 27

acagatttct gactcactgg   20

<210> 28

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 28

tggaaatagg cattcttcag   20

<210> 29

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 29

atacaaagac ggtctaatcc   20

<210> 30

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 30

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<210> 31

<211> 20

<212> DNA

<213> Artificial Sequence

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<210> 32

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 32

acataaatgt tgctatcacc   20

<210> 33

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 33

tgccacttag tagccgagtg   20

<210> 34

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 34

gcattgcatt acagttgagc   20

<210> 35

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 35

tcctcctttg acaatgtctg   20

<210> 36

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 36

catttcgact gttcttaatc   20

<210> 37

<211> 20

<212> DNA

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<400> 37

tcagtggatg tgccacagat   20

<210> 38

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 38

cagtaggtta actgcttcgg   20

<210> 39

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 39

agttccagtc tttctttcgg   20

<210> 40

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 40

tttctttcac tgggctgaagt c   21

<210> 41

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 41

cctctgaaga cggacgtctg   20

<210> 42

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 42

ccatcctaat acgactcact atagggc   27

<210> 43

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 43

ttggggtggg gagaggaggt agattgc   27

<210> 44

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

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<400> 44

actcactata gggctcgagc ggc   23

<210> 45

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 45

gcacatcacc aagtgggctg cctactc   27

<210> 46

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 46

atgagtttgg ttacagctgg   20

<210> 47

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 47

aatctaatgc agctcgcctg   20

<210> 48

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 48

agtcttgctg ggaacaaaga   20

<210> 49

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 49

tcactttaga aggggcacat   20

<210> 50

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 50

actgttacta cttctgatgc   20

<210> 51

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 51

tctgatggtc ccacagtctg   20

<210> 52

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 52

gttgtttcgc agccagggat   20

<210> 53

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 53

ctgagcatcg ttgggggttc   20

<210> 54

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 54

cctcatctct gtagagtgtc   20

<210> 55

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 55

tagggagaag gatcagagcg   20

<210> 56

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 56

tcctcctttg acaatgtctg   20

<210> 57

<211> 18

<212> DNA

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<220>

<223> Artificially Synthesized Primer Sequence

<400> 57

tttcatcatc tacagccagt   20

<210> 58

<211> 20

<212> DNA

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<220>

<223> Artificially Synthesized Primer Sequence

<400> 58

tgacaccctc actattgagc   20

<210> 59

<211> 2819

<212> DNA

<213> Homo sapience

<220>

<221> CDS

<222> (43)...(2331)

<400> 59

accaccgcct ccgcggcacc ccctccttca gcctttgccg aa atg ggt agt aat   54

                                                    Met Gly Ser Asn

                                                      1

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cac aca cag tca tct gca agc aaa atc tca caa gat gtg gac aaa gag        102
His Thr Gln Ser Ser Ala Ser Lys Ile Ser Gln Asp Val Asp Lys Glu
     5               10              15              20


gat gag ttt ggt tac agc tgg aaa aat atc aga gag cgt tat gga acc        150
Asp Glu Phe Gly Tyr Ser Trp Lys Asn Ile Arg Glu Arg Tyr Gly Thr
            25              30              35


cta aca ggc gag ctg cat atg att gaa ctg gag aaa ggt cat agt ggt        198
Leu Thr Gly Glu Leu His Met Ile Glu Leu Glu Lys Gly His Ser Gly
            40              45              50


ttg ggc cta agt ctt gct ggg aac aaa gac cga tcc agg atg agt gtc        246
Leu Gly Leu Ser Leu Ala Gly Asn Lys Asp Arg Ser Arg Met Ser Val
            55              60              65


ttc ata gtg ggg att gat cca aat gga gct gca gga aaa gat ggt cga        294
Phe Ile Val Gly Ile Asp Pro Asn Gly Ala Ala Gly Lys Asp Gly Arg
     70              75              80


ttg caa att gca gat gag ctt cta gag atc aat ggt cag att tta tat        342
Leu Gln Ile Ala Asp Glu Leu Leu Glu Ile Asn Gly Gln Ile Leu Tyr
     85              90              95              100


gga aga agt cat cag aat gcc tca tca atc att aaa tgt gcc cct tct        390
Gly Arg Ser His Gln Asn Ala Ser Ser Ile Ile Lys Cys Ala Pro Ser
```

105   110   115

```
aaa gtg aaa ata att ttt atc aga aat aaa gat gca gtg aat cag atg        438
Lys Val Lys Ile Ile Phe Ile Arg Asn Lys Asp Ala Val Asn Gln Met
            120                 125                 130


gcc gta tgt cct gga aat gca gta gaa cct ttg cct tct aac tca gaa        486
Ala Val Cys Pro Gly Asn Ala Val Glu Pro Leu Pro Ser Asn Ser Glu
            135                 140                 145


aat ctt caa aat aag gag cca gag cca act gtt act act tct gat gca        534
Asn Leu Gln Asn Lys Glu Pro Glu Pro Thr Val Thr Thr Ser Asp Ala
            150                 155                 160


gct gtg gac ctc agt tca ttt aaa aat gtg caa cat ctg gag ctt ccc        582
Ala Val Asp Leu Ser Ser Phe Lys Asn Val Gln His Leu Glu Leu Pro
165                 170                 175                 180


aag gat cag ggg ggt ttg ggt att gct atc agc gaa gaa gat aca ctc        630
Lys Asp Gln Gly Gly Leu Gly Ile Ala Ile Ser Glu Glu Asp Thr Leu
            185                 190                 195


agt gga gtc atc ata aag agc tta aca gag cat ggg gta gca gcc acg        678
Ser Gly Val Ile Ile Lys Ser Leu Thr Glu His Gly Val Ala Ala Thr
            200                 205                 210


gat gga cga ctc aaa gtc gga gat cag ata ctg gct gta gat gat gaa        726
```

Asp Gly Arg Leu Lys Val Gly Asp Gln Ile Leu Ala Val Asp Asp Glu
          215   220   225

att gtt gtt ggt tac cct att gaa aag ttt att agc ctt ctg aag aca   774
Ile Val Val Gly Tyr Pro Ile Glu Lys Phe Ile Ser Leu Leu Lys Thr
          230   235   240

gca aag atg aca gta aaa ctt acc atc cat gct gag aat cca gat tcc   822
Ala Lys Met Thr Val Lys Leu Thr Ile His Ala Glu Asn Pro Asp Ser
245   250   255   260

cag gct gtt cct tca gca gct ggt gca gcc agt gga gaa aaa aag aac   870
Gln Ala Val Pro Ser Ala Ala Gly Ala Ala Ser Gly Glu Lys Lys Asn
                    265   270   275

agc tcc cag tct ctg atg gtc cca cag tct ggc tcc cca gaa ccg gag   918
Ser Ser Gln Ser Leu Met Val Pro Gln Ser Gly Ser Pro Glu Pro Glu
                    280   285   290

tcc atc cga aat aca agc aga tca tca aca cca gca att ttt gct tct   966
Ser Ile Arg Asn Thr Ser Arg Ser Ser Thr Pro Ala Ile Phe Ala Ser
          295   300   305

gat cct gca acc tgc ccc att atc cct ggc tgc gaa aca acc atc gag   1014
Asp Pro Ala Thr Cys Pro Ile Ile Pro Gly Cys Glu Thr Thr Ile Glu
          310   315   320

```
att tcc aaa ggg cga aca ggg ctg ggc ctg agc atc gtt ggg ggt tca          1062
Ile Ser Lys Gly Arg Thr Gly Leu Gly Leu Ser Ile Val Gly Gly Ser
325             330             335             340


gac acg ctg ctg ggt gcc ttt att atc cat gaa gtt tat gaa gaa gga          1110
Asp Thr Leu Leu Gly Ala Phe Ile Ile His Glu Val Tyr Glu Glu Gly
                345             350             355


gca gca tgt aaa gat gga aga ctc tgg gct gga gat cag atc tta gag          1158
Ala Ala Cys Lys Asp Gly Arg Leu Trp Ala Gly Asp Gln Ile Leu Glu
                360             365             370


gtg aat gga att gac ttg agg aag gcc aca cat gat gaa gca atc aat          1206
Val Asn Gly Ile Asp Leu Arg Lys Ala Thr His Asp Glu Ala Ile Asn
                375             380             385


gtc ctg aga cag acg cca cag aga gtg cgc ctg aca ctc tac aga gat          1254
Val Leu Arg Gln Thr Pro Gln Arg Val Arg Leu Thr Leu Tyr Arg Asp
                390             395             400       .


gag gcc cca tac aaa gag gag gaa gtg tgt gac acc ctc act att gag          1302
Glu Ala Pro Tyr Lys Glu Glu Glu Val Cys Asp Thr Leu Thr Ile Glu
405             410             415             420


ctg cag aag aag ccg gga aaa ggc cta gga tta agt att gtt ggt aaa          1350
Leu Gln Lys Lys Pro Gly Lys Gly Leu Gly Leu Ser Ile Val Gly Lys
                425             430             435
```

aga aac gat act gga gta ttt gtg tca gac att gtc aaa gga gga att   1398
Arg Asn Asp Thr Gly Val Phe Val Ser Asp Ile Val Lys Gly Gly Ile
        440   445   450

gca gat ccc gat gga aga ctg atc cag gga gac cag ata tta ttg gtg   1446
Ala Asp Pro Asp Gly Arg Leu Ile Gln Gly Asp Gln Ile Leu Leu Val
        455   460   465

aat ggg gaa gac gtt cgt aat gcc tcc caa gaa gcg gtt gcc gct ttg   1494
Asn Gly Glu Asp Val Arg Asn Ala Ser Gln Glu Ala Val Ala Ala Leu
        470   475   480

cta aag tgt tcc cta ggc aca gta acc ttg gaa gtt gga aga atc aaa   1542
Leu Lys Cys Ser Leu Gly Thr Val Thr Leu Glu Val Gly Arg Ile Lys
485   490   495   500

gct ggt cca ttc cat tca gag agg agg cca tct caa acc agc cag gtg   1590
Ala Gly Pro Phe His Ser Glu Arg Arg Pro Ser Gln Thr Ser Gln Val
        505   510   515

agt gaa ggc agc ctg tct tct ttc act ttt cca ctc tct gga tcc agt   1638
Ser Glu Gly Ser Leu Ser Ser Phe Thr Phe Pro Leu Ser Gly Ser Ser
        520   525   530

aca tct gag tca ctg gaa agt agc tca aag aag aat gca ttg gca tct   1686
Thr Ser Glu Ser Leu Glu Ser Ser Ser Lys Lys Asn Ala Leu Ala Ser

535   540   545

gaa ata cag gga tta aga aca gtc gaa atg aaa aag ggc cct act gac   1734
Glu Ile Gln Gly Leu Arg Thr Val Glu Met Lys Lys Gly Pro Thr Asp
    550   555   560

tca ctg gga atc agc atc gct gga gga gta ggc agc cca ctt ggt gat   1782
Ser Leu Gly Ile Ser Ile Ala Gly Gly Val Gly Ser Pro Leu Gly Asp
565   570   575   580

gtg cct ata ttt att gca atg atg cac cca act gga gtt gca gca cag   1830
Val Pro Ile Phe Ile Ala Met Met His Pro Thr Gly Val Ala Ala Gln
                585   590   595

acc caa aaa ctc aga gtt ggg gat agg att gtc acc atc tgt ggc aca   1878
Thr Gln Lys Leu Arg Val Gly Asp Arg Ile Val Thr Ile Cys Gly Thr
            600   605   610

tcc act gag ggc atg act cac acc caa gca gtt aac cta ctg aaa aat   1926
Ser Thr Glu Gly Met Thr His Thr Gln Ala Val Asn Leu Leu Lys Asn
        615   620   625

gca tct ggc tcc att gaa atg cag gtg gtt gct gga gga gac gtg agt   1974
Ala Ser Gly Ser Ile Glu Met Gln Val Val Ala Gly Gly Asp Val Ser
    630   635   640

gtg gtc aca ggt cat cat cag gag cct gca agt tcc agt ctt tct ttc   2022
Val Val Thr Gly His His Gln Glu Pro Ala Ser Ser Ser Leu Ser Phe

645   650   655   660

act ggg ctg acg tca acc agt ata ttt cag gat gat tta gga cct cct   2070
Thr Gly Leu Thr Ser Thr Ser Ile Phe Gln Asp Asp Leu Gly Pro Pro
                665   670   675

caa tgt aag tct att aca cta gag cga gga cca gat ggc tta ggc ttc   2118
Gln Cys Lys Ser Ile Thr Leu Glu Arg Gly Pro Asp Gly Leu Gly Phe
                680   685   690

agt ata gtt gga gga tat ggc agc cct cat gga gac tta ccc att tat   2166
Ser Ile Val Gly Gly Tyr Gly Ser Pro His Gly Asp Leu Pro Ile Tyr
                695   700   705

gtt aaa aca gtg ttt gca aag gga gca gcc tct gaa gac gga cgt ctg   2214
Val Lys Thr Val Phe Ala Lys Gly Ala Ala Ser Glu Asp Gly Arg Leu
        710   715   720

aaa agg ggc gat cag atc att gct gtc aat ggg cag agt cta gaa gga   2262
Lys Arg Gly Asp Gln Ile Ile Ala Val Asn Gly Gln Ser Leu Glu Gly
725   730   735   740

gtc acc cat gaa gaa gct gtt gcc atc ctt aaa cgg aca aaa ggc act   2310
Val Thr His Glu Glu Ala Val Ala Ile Leu Lys Arg Thr Lys Gly Thr
                745   750   755

gtc act ttg atg gtt ctc tct tgaattggct gccagaattg aaccaaccca   2361
Val Thr Leu Met Val Leu Ser

Val Thr Leu Met Val Leu Ser

760

acccctagct cacctcctac tgtaaagaga atgcactggt cctgacaatt tttatgctgt   2421

gttcagccgg gtcttcaaaa ctgtaggggg gaaataacac ttaagtttct ttttctcatc   2481

tagaaatgct ttccttactg acaacctaac atcatttttc ttttcttctt gcattttgtg   2541

aacttaaaga gaaggaatat ttgtgtaggt gaatctcgtt tttatttgtg gagatatcta   2601

atgttttgta gtcacatggg caagaattat tacatgctaa gctggttagt ataaagaaag   2661

ataattctaa agctaaccaa agaaaatggc ttcagtaagt taggatgaaa aatgaaaata   2721

taaaataaag aagaaaatct cggggagttt aaaaaaaatg cctcaatttg gcaatctacc   2781

tcctctcccc accccaaact aaaaaaaaaa aaaaaaa   2819

<210> 60

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 60

gcccttagga cgcgtaatac gactc   25

<210> 61

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 61

agccagtatc tgatctccga ctttg   25

<210> 62

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 62

attttcactt tagaaggggc acat   25

<210> 63

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 63

ggcataactt tacttacttg   20

<210> 64

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 64

atctactaag tcagcatcat   20

<210> 65

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 65

atttgcaggt gtgtagtcat   20

<210> 66

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 66

ttccttctgt gctacccgat   20

<210> 67

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 67

ggactatctt ccagaacatg   20

<210> 68

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 68

atcgggtcca ttccattcag agagg   25

<210> 69

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 69

aattgtcaag agagaaccat caaagtgg   28

<210> 70

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 7

atcgatgggt agtaatcaca cacag   25

<210> 71

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 71

aattgctata ctggatccag agagtgg   27

<210> 72

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Peptide Sequence

<400> 72

Val Asp Lys Glu Asp Glu Phe Gly Tyr Ser Trp Lys Asn Ile Arg Glu
1   5   10   15

Arg Tyr Gly Cys Gly
20

<210> 73

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 73

tttgtgccca ccagagccaa gtcag   25

<210> 74

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 74

gtgaaagggg taaaggctta gcaac   25

<210> 75

<211> 1776

<212> DNA

<213> Homo sapience

<400> 75

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ca att aca cat cag cag gct atc agc atc ctg cag aaa gcc aaa gat          47
   Ile Thr His Gln Gln Ala Ile Ser Ile Leu Gln Lys Ala Lys Asp
     1               5                   10                  15


acc gtc cag cta gtt att gcc aga ggc tca ttg cct cag ctt gtc agc        95
Thr Val Gln Leu Val Ile Ala Arg Gly Ser Leu Pro Gln Leu Val Ser
               20                  25                  30


ccc ata gtt tcc cgt tct cca tct gca gcc agc aca att tca gct cac       143
Pro Ile Val Ser Arg Ser Pro Ser Ala Ala Ser Thr Ile Ser Ala His
               35                  40                  45


tct aat ccg gtt cac tgg caa cac atg gaa acg att gaa ttg gtg aat       191
Ser Asn Pro Val His Trp Gln His Met Glu Thr Ile Glu Leu Val Asn
               50                  55                  60


gat gga tct ggt ttg gga ttt ggc atc ata gga gga aaa gca act ggt       239
Asp Gly Ser Gly Leu Gly Phe Gly Ile Ile Gly Gly Lys Ala Thr Gly
     65                  70                  75


gtg ata gta aaa acc att ctg cct gga gga gta gct gat cag cat ggg       287
Val Ile Val Lys Thr Ile Leu Pro Gly Gly Val Ala Asp Gln His Gly
     80                  85                  90                  95
```

cgt tta tgc agt gga gac cac att cta aag att ggt gac aca gat cta   335
Arg Leu Cys Ser Gly Asp His Ile Leu Lys Ile Gly Asp Thr Asp Leu
            100   105   110

gca gga atg agc agt gag caa gta gca caa gtc ctt agg caa tgt gga   383
Ala Gly Met Ser Ser Glu Gln Val Ala Gln Val Leu Arg Gln Cys Gly
            115   120   125

aat aga gtt aag ttg atg att gca aga agt gcc ata gaa gaa cgt aca   431
Asn Arg Val Lys Leu Met Ile Ala Arg Ser Ala Ile Glu Glu Arg Thr
            130   135   140

gca ccc act gct ttg ggc atc acc ctc tcc tca tcc cca act tca acg   479
Ala Pro Thr Ala Leu Gly Ile Thr Leu Ser Ser Ser Pro Thr Ser Thr
            145   150   155

cca gag ttg cgg gtt gat gct tct act cag aaa ggt gaa gaa agt gag   527
Pro Glu Leu Arg Val Asp Ala Ser Thr Gln Lys Gly Glu Glu Ser Glu
160   165   170   175

aca ttt gat gta gaa ctc act aaa aat gtc caa gga tta gga att acc   575
Thr Phe Asp Val Glu Leu Thr Lys Asn Val Gln Gly Leu Gly Ile Thr
            180   185   190

att gct ggc tac att gga gat aaa aaa ttg gaa cct tca gga atc ttt   623
Ile Ala Gly Tyr Ile Gly Asp Lys Lys Leu Glu Pro Ser Gly Ile Phe

```
                        195                 200                 205


    gta aag agc att aca aaa agc agt gcc gtt gag cat gat gga aga atc       671
    Val Lys Ser Ile Thr Lys Ser Ser Ala Val Glu His Asp Gly Arg Ile
                210                 215                 220


    caa att gga gac caa att ata gca gta gat ggc aca aac ctt cag ggt       719
    Gln Ile Gly Asp Gln Ile Ile Ala Val Asp Gly Thr Asn Leu Gln Gly
                225                 230                 235


    ttt act aat cag caa gca gta gag gta ttg cga cat aca gga caa act       767
    Phe Thr Asn Gln Gln Ala Val Glu Val Leu Arg His Thr Gly Gln Thr
    240                 245                 250                 255


    gtg ctc ctg aca cta atg agg aga gga atg aag cag gaa gcc gag ctc       815
    Val Leu Leu Thr Leu Met Arg Arg Gly Met Lys Gln Glu Ala Glu Leu
                260                 265                 270


    atg tca agg gaa gac gtc aca aaa gat gca gat ttg tct cct gtt aat       863
    Met Ser Arg Glu Asp Val Thr Lys Asp Ala Asp Leu Ser Pro Val Asn
                275                 280                 285


    gcc agc ata atc aaa gaa aat tat gaa aaa gat gaa gat ttt tta tct       911
    Ala Ser Ile Ile Lys Glu Asn Tyr Glu Lys Asp Glu Asp Phe Leu Ser
                290                 295                 300


    tcg acg aga aac acc aac ata tta cca act gaa gaa gaa ggg tat cca       959
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Ser Thr Arg Asn Thr Asn Ile Leu Pro Thr Glu Glu Glu Gly Tyr Pro
    305   310   315

tta ctg tca gct gag ata gaa gaa ata gaa gat gca caa aaa caa gaa   1007
Leu Leu Ser Ala Glu Ile Glu Glu Ile Glu Asp Ala Gln Lys Gln Glu
320   325   330   335

gct gct ctg ctg aca aaa tgg caa agg att atg gga att aac tat gaa   1055
Ala Ala Leu Leu Thr Lys Trp Gln Arg Ile Met Gly Ile Asn Tyr Glu
                340   345   350

ata gtg gtg gcc cat gtg agc aag ttt agt gag aac agt gga ttg ggg   1103
Ile Val Val Ala His Val Ser Lys Phe Ser Glu Asn Ser Gly Leu Gly
                355   360   365

ata agc ctg gaa gcg aca gtg gga cat cat ttt atc cga tct gtt cta   1151
Ile Ser Leu Glu Ala Thr Val Gly His His Phe Ile Arg Ser Val Leu
            370   375   380

cca gag ggt cct gtt gga cac agc ggg aag ctc ttc agt gga gac gag   1199
Pro Glu Gly Pro Val Gly His Ser Gly Lys Leu Phe Ser Gly Asp Glu
        385   390   395

cta ttg gaa gta aat ggc ata act tta ctt ggg gaa aat cac caa gat   1247
Leu Leu Glu Val Asn Gly Ile Thr Leu Leu Gly Glu Asn His Gln Asp
400   405   410   415

```
gtg gtg aat atc tta aaa gaa ctg cct ata gaa gtg aca atg gtg tgc     1295
Val Val Asn Ile Leu Lys Glu Leu Pro Ile Glu Val Thr Met Val Cys
            420                 425                 430


tgt cgt cga act gtg cca ccc acc acc caa tca gaa ttg gat agc ctg     1343
Cys Arg Arg Thr Val Pro Pro Thr Thr Gln Ser Glu Leu Asp Ser Leu
            435                 440                 445


gac tta tgt gat att gag cta aca gaa aag cct cac gta gat cta ggt     1391
Asp Leu Cys Asp Ile Glu Leu Thr Glu Lys Pro His Val Asp Leu Gly
            450                 455                 460


gag ttc atc ggg tca tca gag cca gag gat cca gtg ctg gcg atg act     1439
Glu Phe Ile Gly Ser Ser Glu Pro Glu Asp Pro Val Leu Ala Met Thr
        465                 470                 475


gat gcg ggt cag agt aca gaa gag gtt caa gca cct ttg gcc atg tgg     1487
Asp Ala Gly Gln Ser Thr Glu Glu Val Gln Ala Pro Leu Ala Met Trp
480                 485                 490                 495


gag gct ggc att cag cac ata atg ctg gag aaa ggg agc aaa gga ctt     1535
Glu Ala Gly Ile Gln His Ile Met Leu Glu Lys Gly Ser Lys Gly Leu
            500                 505                 510


ggt ttt agc att tta gat tat cag gat cca att gat cca gca agc act     1583
Gly Phe Ser Ile Leu Asp Tyr Gln Asp Pro Ile Asp Pro Ala Ser Thr
            515                 520                 525
```

```
gtg att ata att cgt tct ttg gtg cct ggc ggc att gct gaa aag gat          1631
Val Ile Ile Ile Arg Ser Leu Val Pro Gly Gly Ile Ala Glu Lys Asp
        530                 535                 540


gga cga ctt ctt cct ggt gac cga ctc atg ttt gta aac gat gtt aac          1679
Gly Arg Leu Leu Pro Gly Asp Arg Leu Met Phe Val Asn Asp Val Asn
        545                 550                 555


ttg gaa aac agc agt ctt gag gaa gct gta gaa gca ctg aag gga gca          1727
Leu Glu Asn Ser Ser Leu Glu Glu Ala Val Glu Ala Leu Lys Gly Ala
560                 565                 570                 575


ccg tca ggg act gtg aga ata gga gtt gct aag cct tta ccc ctt tc          1774
Pro Ser Gly Thr Val Arg Ile Gly Val Ala Lys Pro Leu Pro Leu
                580                 585                 590



ac                                                                       1776
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<210> 76

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 76

gcagatggag aacgggaaac tatgg   76

<210> 77

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificially Synthesized Primer Sequence

<400> 77

gaacgggaaa ctatggggct gacaa   25

<210> 78

<211> 777

<212> DNA

<213> Homo sapience

<400> 78

ttctcagtca cgcagttcca ttttaattgc tgttaatcat ttcagagaag aacactgaac   60

tttgaaaaaa atg ttg gaa gcc att gac aaa aat cgg gcc ctg cat gca   109
            Met Leu Glu Ala Ile Asp Lys Asn Arg Ala Leu His Ala
            1   5   10

gca gag cgc ttg caa acc aag ctg cga gaa cgt ggg gat gta gca aat   157
Ala Glu Arg Leu Gln Thr Lys Leu Arg Glu Arg Gly Asp Val Ala Asn
   15   20   25

gaa gac aaa ctg agc ctt ctg aag tca gtc ctg cag agc cct ctc ttc   205
Glu Asp Lys Leu Ser Leu Leu Lys Ser Val Leu Gln Ser Pro Leu Phe
   30   35   40   45

agt cag att ctg agc ctt cag act tct gta cag cag ctg aaa gac cag   253
Ser Gln Ile Leu Ser Leu Gln Thr Ser Val Gln Gln Leu Lys Asp Gln
           50   55   60

gta aat att gca act tca gca act tca aat att gaa tat gcc cac gtt   301
Val Asn Ile Ala Thr Ser Ala Thr Ser Asn Ile Glu Tyr Ala His Val
         65   70   75

cct cat ctc agc cca gct gtg att cct act ctg caa aat gaa tcg ttt   349
Pro His Leu Ser Pro Ala Val Ile Pro Thr Leu Gln Asn Glu Ser Phe
       80   85   90

tta tta tcc cca aac aat ggg aat ctg gaa gca ctt aca gga cct ggt   397
Leu Leu Ser Pro Asn Asn Gly Asn Leu Glu Ala Leu Thr Gly Pro Gly
   95   100   105

att cca cac att aat ggg aaa cct gct tgt gat gaa ttt gat cag ctt   445
Ile Pro His Ile Asn Gly Lys Pro Ala Cys Asp Glu Phe Asp Gln Leu
110   115   120   125

```
atc aaa aat atg gcc cag ggt cgc cat gta gaa gtt ttt gag ctc ctc          493
Ile Lys Asn Met Ala Gln Gly Arg His Val Glu Val Phe Glu Leu Leu
            130                 135                 140


aaa cct cca tct gga ggc ctt ggg ttt agt gtt gtg gga cta aga agt          541
Lys Pro Pro Ser Gly Gly Leu Gly Phe Ser Val Val Gly Leu Arg Ser
            145                 150                 155


gaa aac aga gga gag ctg gga ata ttt gtt caa gag ata caa gag ggc          589
Glu Asn Arg Gly Glu Leu Gly Ile Phe Val Gln Glu Ile Gln Glu Gly
            160                 165                 170


agt gtg gcc cat aga gat gga aga ttg aaa gaa act gat caa att ctt          637
Ser Val Ala His Arg Asp Gly Arg Leu Lys Glu Thr Asp Gln Ile Leu
            175                 180                 185


gct atc aat gga cag gct ctt gat cag aca att aca cat cag cag gct          685
Ala Ile Asn Gly Gln Ala Leu Asp Gln Thr Ile Thr His Gln Gln Ala
190                 195                 200                 205


atc agc atc ctg cag aaa gcc aaa gat act gtc cag cta gtt att gcc          733
Ile Ser Ile Leu Gln Lys Ala Lys Asp Thr Val Gln Leu Val Ile Ala
            210                 215                 220


aga ggc tca ttg cct cag ctt gtc agc ccc ata gtt tcc cgt               775
Arg Gly Ser Leu Pro Gln Leu Val Ser Pro Ile Val Ser Arg
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225   230   235

tc   777

<210> 79

<211> 755

<212> DNA

<213> Homo sapience

<400> 79

tt cct tct gtg cta ccc gat tca gct gga aag ggc tct gag tac ctg   47

   Pro Ser Val Leu Pro Asp Ser Ala Gly Lys Gly Ser Glu Tyr Leu

   1   5   10   15

ctt gaa cag agc tcc ctg gcc tgt aat gct gag tgt gtc atg ctt caa   95

Leu Glu Gln Ser Ser Leu Ala Cys Asn Ala Glu Cys Val Met Leu Gln

         20   25   30

aat gta tct aaa gaa tct ttt gaa agg act att aat ata gca aaa ggc   143

Asn Val Ser Lys Glu Ser Phe Glu Arg Thr Ile Asn Ile Ala Lys Gly

         35   40   45

aat tct agc cta gga atg aca gtt agt gct aat aaa gat ggc ttg ggg   191

Asn Ser Ser Leu Gly Met Thr Val Ser Ala Asn Lys Asp Gly Leu Gly

         50   55   60

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atg atc gtt cga agc att att cat gga ggt gcc att agt cga gat ggc        239
Met Ile Val Arg Ser Ile Ile His Gly Gly Ala Ile Ser Arg Asp Gly
     65                  70                  75


cgg att gcc att ggg gac tgc atc ttg tcc att aat gaa gag tct acc        287
Arg Ile Ala Ile Gly Asp Cys Ile Leu Ser Ile Asn Glu Glu Ser Thr
 80                  85                  90                  95


atc agt gta acc aat gcc cag gca cga gct atg ttg aga aga cat tct        335
Ile Ser Val Thr Asn Ala Gln Ala Arg Ala Met Leu Arg Arg His Ser
                 100                 105                 110


ctc att ggc cct gac ata aaa att act tat gtg cct gca gaa cat ttg        383
Leu Ile Gly Pro Asp Ile Lys Ile Thr Tyr Val Pro Ala Glu His Leu
             115                 120                 125


gaa gag ttc aaa ata agc ttg gga caa caa tct gga aga gta atg gca        431
Glu Glu Phe Lys Ile Ser Leu Gly Gln Gln Ser Gly Arg Val Met Ala
          130                 135                 140


ctg gat att ttt tct tca tac act ggc aga gac att cca gaa tta cca        479
Leu Asp Ile Phe Ser Ser Tyr Thr Gly Arg Asp Ile Pro Glu Leu Pro
      145                 150                 155


gag cga gaa gag gga gag ggt gaa gaa agc gaa ctt caa aac aca gca        527
Glu Arg Glu Glu Gly Glu Gly Glu Glu Ser Glu Leu Gln Asn Thr Ala
160                 165                 170                 175
```

tat agc aat tgg aat cag ccc agg cgg gtg gaa ctc tgg aga gaa cca   575
Tyr Ser Asn Trp Asn Gln Pro Arg Arg Val Glu Leu Trp Arg Glu Pro
                180   185   190

agc aaa tcc tta ggc atc agc att gtt ggt gga cga ggg atg ggg agt   623
Ser Lys Ser Leu Gly Ile Ser Ile Val Gly Gly Arg Gly Met Gly Ser
                195   200   205

cgg cta agc aat gga gaa gtg atg agg ggc att ttc atc aaa cat gtt   671
Arg Leu Ser Asn Gly Glu Val Met Arg Gly Ile Phe Ile Lys His Val
                210   215   220

ctg gaa gat agt cca gct ggc aaa aat gga acc ttg aaa cct gga gat   719
Leu Glu Asp Ser Pro Ala Gly Lys Asn Gly Thr Leu Lys Pro Gly Asp
         225   230   235

aga atc gta gag gca ccc agt cag tca gag tca gag   755
Arg Ile Val Glu Ala Pro Ser Gln Ser Glu Ser Glu
240   245   250

<210> 80

<211> 865

<212> DNA

<213> Homo sapience

<400> 80

tt cct tct gtg cta ccc gat tca gct gga aag ggc tct gag tac ctg   47
   Pro Ser Val Leu Pro Asp Ser Ala Gly Lys Gly Ser Glu Tyr Leu
    1   5   10   15

ctt gaa cag agc tcc ctg gcc tgt aat gct gag tgt gtc atg ctt caa   95
Leu Glu Gln Ser Ser Leu Ala Cys Asn Ala Glu Cys Val Met Leu Gln
             20   25   30

aat gta tct aaa gaa tct ttt gaa agg act att aat ata gca aaa ggc   143
Asn Val Ser Lys Glu Ser Phe Glu Arg Thr Ile Asn Ile Ala Lys Gly
             35   40   45

aat tct agc cta gga atg aca gtt agt gct aat aaa gat ggc ttg ggg   191
Asn Ser Ser Leu Gly Met Thr Val Ser Ala Asn Lys Asp Gly Leu Gly
             50   55   60

atg atc gtt cga agc att att cat gga ggt gcc att agt cga gat ggc   239
Met Ile Val Arg Ser Ile Ile His Gly Gly Ala Ile Ser Arg Asp Gly
         65   70   75

cgg att gcc att ggg gac tgc atc ttg tcc att aat gaa gag tct acc   287
Arg Ile Ala Ile Gly Asp Cys Ile Leu Ser Ile Asn Glu Glu Ser Thr
    80   85   90   95

atc agt gta acc aat gcc cag gca cga gct atg ttg aga aga cat tct   335
Ile Ser Val Thr Asn Ala Gln Ala Arg Ala Met Leu Arg Arg His Ser
                 100   105   110

ctc att ggc cct gac ata aaa att act tat gtg cct gca gaa cat ttg   383
Leu Ile Gly Pro Asp Ile Lys Ile Thr Tyr Val Pro Ala Glu His Leu
              115   120   125

gaa gag ttc aaa ata agc ttg gga caa caa tct gga aga gta atg gca   431
Glu Glu Phe Lys Ile Ser Leu Gly Gln Gln Ser Gly Arg Val Met Ala
              130   135   140

ctg gat att ttt tct tca tac act ggc aga gac att cca gaa tta·cca   479
Leu Asp Ile Phe Ser Ser Tyr Thr Gly Arg Asp Ile Pro Glu Leu Pro
              145   150   155

gag cga gaa gag gga gag ggt gaa gaa agc gaa ctt caa aac aca gca   527
Glu Arg Glu Glu Gly Glu Gly Glu Glu Ser Glu Leu Gln Asn Thr Ala
160   165   170   175

tat agc aat tgg aat cag ccc agg cgg gtg gaa ctc tgg aga gaa cca   575
Tyr Ser Asn Trp Asn Gln Pro Arg Arg Val Glu Leu Trp Arg Glu Pro
              180   185   190

agc aaa tcc tta ggc atc agc att gtt ggt gga cga ggg atg ggg agt   623
Ser Lys Ser Leu Gly Ile Ser Ile Val Gly Gly Arg Gly Met Gly Ser
              195   200   205

cgg cta agc aat gga gaa gtg atg agg ggc att ttc atc aaa cat gtt   671
Arg Leu Ser Asn Gly Glu Val Met Arg Gly Ile Phe Ile Lys His Val

```
                210                   215                   220

        ctg gaa gat agt cca gct ggc aaa aat gga acc ttg aaa cct gga gat          719
        Leu Glu Asp Ser Pro Ala Gly Lys Asn Gly Thr Leu Lys Pro Gly Asp
            225                   230                   235


        aga atc gta gag gtg gat gga atg gac ctc aga gat gca agc cat gaa          767
        Arg Ile Val Glu Val Asp Gly Met Asp Leu Arg Asp Ala Ser His Glu
        240                   245                   250                   255


        caa gct gtg gaa gcc att cgg aaa gca ggc aac cct gta gtc ttt atg          815
        Gln Ala Val Glu Ala Ile Arg Lys Ala Gly Asn Pro Val Val Phe Met
                            260                   265                   270


        gta tag agc ttt att aca gac caa ggg cac cca gtc agt cag agt cag          863
        Val
                    275                   280                   285


        ag                                                                       865
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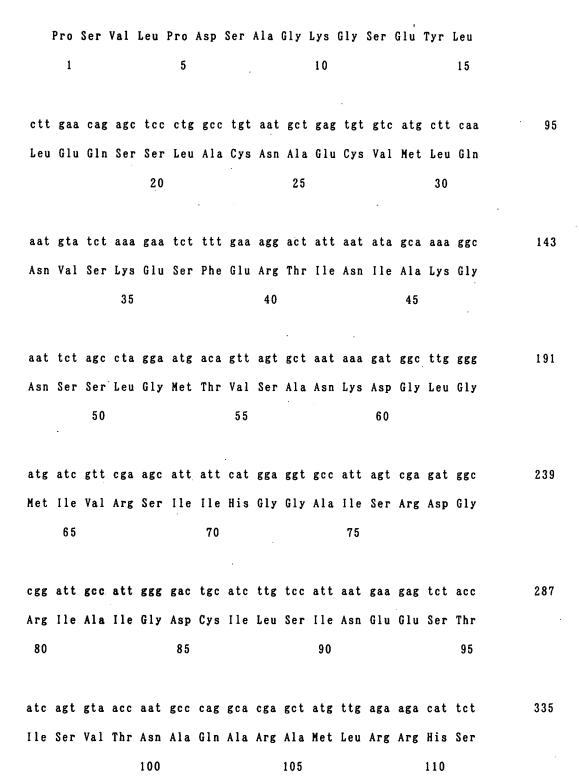
<210> 81

<211> 965

<212> DNA

<213> Homo sapience

<400> 81

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tt cct tct gtg cta ccc gat tca gct gga aag ggc tct gag tac ctg                   47
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      Pro Ser Val Leu Pro Asp Ser Ala Gly Lys Gly Ser Glu Tyr Leu
       1               5                  10                  15


      ctt gaa cag agc tcc ctg gcc tgt aat gct gag tgt gtc atg ctt caa        95
      Leu Glu Gln Ser Ser Leu Ala Cys Asn Ala Glu Cys Val Met Leu Gln
                      20                  25                  30


      aat gta tct aaa gaa tct ttt gaa agg act att aat ata gca aaa ggc        143
      Asn Val Ser Lys Glu Ser Phe Glu Arg Thr Ile Asn Ile Ala Lys Gly
                      35                  40                  45


      aat tct agc cta gga atg aca gtt agt gct aat aaa gat ggc ttg ggg        191
      Asn Ser Ser Leu Gly Met Thr Val Ser Ala Asn Lys Asp Gly Leu Gly
                      50                  55                  60


      atg atc gtt cga agc att att cat gga ggt gcc att agt cga gat ggc        239
      Met Ile Val Arg Ser Ile Ile His Gly Gly Ala Ile Ser Arg Asp Gly
            65                  70                  75


      cgg att gcc att ggg gac tgc atc ttg tcc att aat gaa gag tct acc        287
      Arg Ile Ala Ile Gly Asp Cys Ile Leu Ser Ile Asn Glu Glu Ser Thr
      80                  85                  90                  95


      atc agt gta acc aat gcc cag gca cga gct atg ttg aga aga cat tct        335
      Ile Ser Val Thr Asn Ala Gln Ala Arg Ala Met Leu Arg Arg His Ser
                      100                 105                 110
```

ctc att ggc cct gac ata aaa att act tat gtg cct gca gaa cat ttg   383
Leu Ile Gly Pro Asp Ile Lys Ile Thr Tyr Val Pro Ala Glu His Leu
           115   120   125

gaa gag ttc aaa ata agc ttg gga caa caa tct gga aga gta atg gca   431
Glu Glu Phe Lys Ile Ser Leu Gly Gln Gln Ser Gly Arg Val Met Ala
           130   135   140

ctg gat att ttt tct tca tac act ggc aga gac att cca gaa tta cca   479
Leu Asp Ile Phe Ser Ser Tyr Thr Gly Arg Asp Ile Pro Glu Leu Pro
           145   150   155

gag cga gaa gag gga gag ggt gaa gaa agc gaa ctt caa aac aca gca   527
Glu Arg Glu Glu Gly Glu Gly Glu Glu Ser Glu Leu Gln Asn Thr Ala
160   165   170   175

tat agc aat tgg aat cag ccc agg cgg gtg gaa ctc tgg aga gaa cca   575
Tyr Ser Asn Trp Asn Gln Pro Arg Arg Val Glu Leu Trp Arg Glu Pro
           180   185   190

agc aaa tcc tta ggc atc agc att gtt ggt gga cga ggg atg ggg agt   623
Ser Lys Ser Leu Gly Ile Ser Ile Val Gly Gly Arg Gly Met Gly Ser
           195   200   205

cgg cta agc aat gga gaa gtg atg agg ggc att ttc atc aaa cat gtt   671
Arg Leu Ser Asn Gly Glu Val Met Arg Gly Ile Phe Ile Lys His Val
           210   215   220

ctg gaa gat agt cca gct ggc aaa aat gga acc ttg aaa cct gga gat   719
Leu Glu Asp Ser Pro Ala Gly Lys Asn Gly Thr Leu Lys Pro Gly Asp
   225   230   235

aga atc gta gag gtg gat gga atg gac ctc aga gat gca agc cat gaa   767
Arg Ile Val Glu Val Asp Gly Met Asp Leu Arg Asp Ala Ser His Glu
240   245   250   255

caa gct gtg gaa gcc att cgg aaa gca ggc aac cct gta gtc ttt atg   815
Gln Ala Val Glu Ala Ile Arg Lys Ala Gly Asn Pro Val Val Phe Met
         260   265   270

gta cag agc att ata aac aga cca agg aaa tcc cct ttg cct tcc ttg   863
Val Gln Ser Ile Ile Asn Arg Pro Arg Lys Ser Pro Leu Pro Ser Leu
         275   280   285

ctg cac aac ctt tac cct aag tac aac ttc agc agc act aac cca ttt   911
Leu His Asn Leu Tyr Pro Lys Tyr Asn Phe Ser Ser Thr Asn Pro Phe
         290   295   300

gct gac tct cta caa atc aac gcc gac aag gca ccc agt cag tca gag   959
Ala Asp Ser Leu Gln Ile Asn Ala Asp Lys Ala Pro Ser Gln Ser Glu
   305   310   315

tca gag   965
Ser Glu

320

<210> 82

<211> 2000

<212> PRT

<213> Homo sapience

<400> 82

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                Met Leu Glu Ala Ile Asp Lys Asn Arg Ala Leu His Ala
                 1                   5                   10
Ala Glu Arg Leu Gln Thr Lys Leu Arg Glu Arg Gly Asp Val Ala Asn
         15                  20                  25
Glu Asp Lys Leu Ser Leu Leu Lys Ser Val Leu Gln Ser Pro Leu Phe
 30                  35                  40                  45
Ser Gln Ile Leu Ser Leu Gln Thr Ser Val Gln Gln Leu Lys Asp Gln
                     50                  55                  60
Val Asn Ile Ala Thr Ser Ala Thr Ser Asn Ile Glu Tyr Ala His Val
                 65                  70                  75
Pro His Leu Ser Pro Ala Val Ile Pro Thr Leu Gln Asn Glu Ser Phe
             80                  85                  90
Leu Leu Ser Pro Asn Asn Gly Asn Leu Glu Ala Leu Thr Gly Pro Gly
         95                  100                 105
Ile Pro His Ile Asn Gly Lys Pro Ala Cys Asp Glu Phe Asp Gln Leu
110                 115                 120                 125
Ile Lys Asn Met Ala Gln Gly Arg His Val Glu Val Phe Glu Leu Leu
                 130                 135                 140
Lys Pro Pro Ser Gly Gly Leu Gly Phe Ser Val Val Gly Leu Arg Ser
```

```
                  145                 150                 155
Glu Asn Arg Gly Glu Leu Gly Ile Phe Val Gln Glu Ile Gln Glu Gly
            160                 165                 170
Ser Val Ala His Arg Asp Gly Arg Leu Lys Glu Thr Asp Gln Ile Leu
        175                 180                 185
Ala Ile Asn Gly Gln Ala Leu Asp Gln Thr Ile Thr His Gln Gln Ala
190                 195                 200                 205
Ile Ser Ile Leu Gln Lys Ala Lys Asp Thr Val Gln Leu Val Ile Ala
                210                 215                 220
Arg Gly Ser Leu Pro Gln Leu Val Ser Pro Ile Val Ser Arg Ser Pro
            225                 230                 235
Ser Ala Ala Ser Thr Ile Ser Ala His Ser Asn Pro Val His Trp Gln
            240                 245                 250
His Met Glu Thr Ile Glu Leu Val Asn Asp Gly Ser Gly Leu Gly Phe
        255                 260                 265
Gly Ile Ile Gly Gly Lys Ala Thr Gly Val Ile Val Lys Thr Ile Leu
270                 275                 280                 285
Pro Gly Gly Val Ala Asp Gln His Gly Arg Leu Cys Ser Gly Asp His
                290                 295             ·   300
Ile Leu Lys Ile Gly Asp Thr Asp Leu Ala Gly Met Ser Ser Glu Gln
            305                 310                 315
Val Ala Gln Val Leu Arg Gln Cys Gly Asn Arg Val Lys Leu Met Ile
        320                 325                 330
Ala Arg Ser Ala Ile Glu Glu Arg Thr Ala Pro Thr Ala Leu Gly Ile
    335                 340                 345
Thr Leu Ser Ser Ser Pro Thr Ser Thr Pro Glu Leu Arg Val Asp Ala
350                 355                 360                 365
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Ser Thr Gln Lys Gly Glu Glu Ser Glu Thr Phe Asp Val Glu Leu Thr
                370   375   380

Lys Asn Val Gln Gly Leu Gly Ile Thr Ile Ala Gly Tyr Ile Gly Asp
                385   390   395

Lys Lys Leu Glu Pro Ser Gly Ile Phe Val Lys Ser Ile Thr Lys Ser
                400   405   410

Ser Ala Val Glu His Asp Gly Arg Ile Gln Ile Gly Asp Gln Ile Ile
             415   420   425

Ala Val Asp Gly Thr Asn Leu Gln Gly Phe Thr Asn Gln Gln Ala Val
430   435   440   445

Glu Val Leu Arg His Thr Gly Gln Thr Val Leu Leu Thr Leu Met Arg
                450   455   460

Arg Gly Met Lys Gln Glu Ala Glu Leu Met Ser Arg Glu Asp Val Thr
                465   470   475

Lys Asp Ala Asp Leu Ser Pro Val Asn Ala Ser Ile Ile Lys Glu Asn
             480   485   490

Tyr Glu Lys Asp Glu Asp Phe Leu Ser Ser Thr Arg Asn Thr Asn Ile
          495   500   505

Leu Pro Thr Glu Glu Glu Gly Tyr Pro Leu Leu Ser Ala Glu Ile Glu
510   515   520   525

Glu Ile Glu Asp Ala Gln Lys Gln Glu Ala Ala Leu Leu Thr Lys Trp
                530   535   540

Gln Arg Ile Met Gly Ile Asn Tyr Glu Ile Val Val Ala His Val Ser
                545   550   555

Lys Phe Ser Glu Asn Ser Gly Leu Gly Ile Ser Leu Glu Ala Thr Val
             560   565   570

Gly His His Phe Ile Arg Ser Val Leu Pro Glu Gly Pro Val Gly His

                575   580   585

Ser Gly Lys Leu Phe Ser Gly Asp Glu Leu Leu Glu Val Asn Gly Ile

590   595   600   605

Thr Leu Leu Gly Glu Asn His Gln Asp Val Val Asn Ile Leu Lys Glu

                    610   615   620

Leu Pro Ile Glu Val Thr Met Val Cys Cys Arg Arg Thr Val Pro Pro

                625   630   635

Thr Thr Gln Ser Glu Leu Asp Ser Leu Asp Leu Cys Asp Ile Glu Leu

                640   645   650

Thr Glu Lys Pro His Val Asp Leu Gly Glu Phe Ile Gly Ser Ser Glu

            655   660   665

Pro Glu Asp Pro Val Leu Ala Met Thr Asp Ala Gly Gln Ser Thr Glu

670   675   680   685

Glu Val Gln Ala Pro Leu Ala Met Trp Glu Ala Gly Ile Gln His Ile

                690   695   700

Met Leu Glu Lys Gly Ser Lys Gly Leu Gly Phe Ser Ile Leu Asp Tyr

                705   710   715

Gln Asp Pro Ile Asp Pro Ala Ser Thr Val Ile Ile Ile Arg Ser Leu

            720   725   730

Val Pro Gly Gly Ile Ala Glu Lys Asp Gly Arg Leu Leu Pro Gly Asp

    735   740   745

Arg Leu Met Phe Val Asn Asp Val Asn Leu Glu Asn Ser Ser Leu Glu

750   755   760   765

Glu Ala Val Glu Ala Leu Lys Gly Ala Pro Ser Gly Thr Val Arg Ile

                770   775   780

Gly Val Ala Lys Pro Leu Pro Leu Ser Pro Glu Glu Gly Tyr Val Ser

                785   790   795

Ala Lys Glu Asp Ser Phe Leu Tyr Pro Pro His Ser Cys Glu Glu Ala
      800   805   810

Gly Leu Ala Asp Lys Pro Leu Phe Arg Ala Asp Leu Ala Leu Val Gly
      815   820   825

Thr Asn Asp Ala Asp Leu Val Asp Glu Ser Thr Phe Glu Ser Pro Tyr
830   835   840   845

Ser Pro Glu Asn Asp Ser Ile Tyr Ser Thr Gln Ala Ser Ile Leu Ser
                  850   855   860

Leu His Gly Ser Ser Cys Gly Asp Gly Leu Asn Tyr Gly Ser Ser Leu
                  865   870   875

Pro Ser Ser Pro Pro Lys Asp Val Ile Glu Asn Ser Cys Asp Pro Val
      880   885   890

Leu Asp Leu His Met Ser Leu Glu Glu Leu Tyr Thr Gln Asn Leu Leu
      895   900   905

Glu Arg Gln Asp Glu Asn Thr Pro Ser Val Asp Ile Ser Met Gly Pro
910   915   920   925

Ala Ser Gly Phe Thr Ile Asn Asp Tyr Thr Pro Ala Asn Ala Ile Glu
                  930   935   940

Gln Gln Tyr Glu Cys Glu Asn Thr Ile Val Trp Thr Glu Ser His Leu
                  945   950   955

Pro Ser Glu Val Ile Ser Ser Ala Glu Leu Pro Ser Val Leu Pro Asp
      960   965   970

Ser Ala Gly Lys Gly Ser Glu His Leu Leu Glu Gln Ser Ser Leu Ala
      975   980   985

Cys Asn Ala Glu Cys Val Met Leu Gln Asn Val Ser Lys Glu Ser Phe
990   995   1000   1005

Glu Arg Thr Ile Asn Ile Ala Lys Gly Asn Ser Ser Leu Gly Met Thr

<pre>
                    1010   1015   1020
Val Ser Ala Asn Lys Asp Gly Leu Gly Met Ile Val Arg Ser Ile Ile
              1025   1030   1035
His Gly Gly Ala Ile Ser Arg Asp Gly Arg Ile Ala Ile Gly Asp Cys
          1040   1045   1050
Ile Leu Ser Ile Asn Glu Glu Ser Thr Ile Ser Val Thr Asn Ala Gln
        1055   1060   1065
Ala Arg Ala Met Leu Arg Arg His Ser Leu Ile Gly Pro Asp Ile Lys
      1070   1075   1080   1085
Ile Thr Tyr Val Pro Ala Glu His Leu Glu Glu Phe Lys Ile Ser Leu
                    1090   1095   1100
Gly Gln Gln Ser Gly Arg Val Met Ala Leu Asp Ile Phe Ser Ser Tyr
                1105   1110   1115
Thr Gly Arg Asp Ile Pro Glu Leu Pro Glu Arg Glu Glu Gly Glu Gly
          1120   1125   1130
Glu Glu Ser Glu Leu Gln Asn Thr Ala Tyr Ser Asn Trp Asn Gln Pro
        1135   1140   1145
Arg Arg Val Glu Leu Trp Arg Glu Pro Ser Lys Ser Leu Gly Ile Ser
      1150   1155   1160   1165
Ile Val Gly Gly Arg Gly Met Gly Ser Arg Leu Ser Asn Gly Glu Val
                1170   1175   1180
Met Arg Gly Ile Phe Ile Lys His Val Leu Glu Asp Ser Pro Ala Gly
                1185   1190   1195
Lys Asn Gly Thr Leu Lys Pro Gly Asp Arg Ile Val Glu Ala Pro Ser
            1200   1205   1210
Gln Ser Glu Ser Glu Pro Glu Lys Ala Pro Leu Cys Ser Val Pro Pro
      1215   1220   1225
</pre>

Pro Pro Pro Ser Ala Phe Ala Glu Met Gly Ser Asp His Thr Gln Ser

1230   1235   1240   1245

Ser Ala Ser Lys Ile Ser Gln Asp Val Asp Lys Glu Asp Glu Phe Gly

          1250   1255   1260

Tyr Ser Trp Lys Asn Ile Arg Glu Arg Tyr Gly Thr Leu Thr Gly Glu

          1265   1270   1275

Leu His Met Ile Glu Leu Glu Lys Gly His Ser Gly Leu Gly Leu Ser

          1280   1285   1290

Leu Ala Gly Asn Lys Asp Arg Ser Arg Met Ser Val Phe Ile Val Gly

        1295   1300   1305

Ile Asp Pro Asn Gly Ala Ala Gly Lys Asp Gly Arg Leu Gln Ile Ala

1310   1315   1320   1325

Asp Glu Leu Leu Glu Ile Asn Gly Gln Ile Leu Tyr Gly Arg Ser His

          1330   1335   1340

Gln Asn Ala Ser Ser Ile Ile Lys Cys Ala Pro Ser Lys Val Lys Ile

          1345   1350   1355

Ile Phe Ile Arg Asn Lys Asp Ala Val Asn Gln Met Ala Val Cys Pro

        1360   1365   1370

Gly Asn Ala Val Glu Pro Leu Pro Ser Asn Ser Glu Asn Leu Gln Asn

  1375   1380   1385

Lys Glu Thr Glu Pro Thr Val Thr Thr Ser Asp Ala Ala Val Asp Leu

1390   1395   1400   1405

Ser Ser Phe Lys Asn Val Gln His Leu Glu Leu Pro Lys Asp Gln Gly

          1410   1415   1420

Gly Leu Gly Ile Ala Ile Ser Glu Glu Asp Thr Leu Ser Gly Val Ile

        1425   1430   1435

Ile Lys Ser Leu Thr Glu His Gly Val Ala Ala Thr Asp Gly Arg Leu

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              1440                1445                1450
Lys Val Gly Asp Gln Ile Leu Ala Val Asp Asp Glu Ile Val Val Gly
         1455                1460                1465
Tyr Pro Ile Glu Lys Phe Ile Ser Leu Leu Lys Thr Ala Lys Met Thr
1470                1475                1480                1485
Val Lys Leu Thr Ile His Ala Glu Asn Pro Asp Ser Gln Ala Val Pro
                   1490                1495                1500
Ser Ala Ala Gly Ala Ala Ser Gly Glu Lys Lys Asn Ser Ser Gln Ser
              1505                1510                1515
Leu Met Val Pro Gln Ser Gly Ser Pro Glu Pro Glu Ser Ile Arg Asn
         1520                1525                1530
Thr Ser Arg Ser Ser Thr Pro Ala Ile Phe Ala Ser Asp Pro Ala Thr
         1535                1540                1545
Cys Pro Ile Ile Pro Gly Cys Glu Thr Thr Ile Glu Ile Ser Lys Gly
1550                1555                1560                1565
Arg Thr Gly Leu Gly Leu Ser Ile Val Gly Gly Ser Asp Thr Leu Leu
                   1570                1575                1580
Gly Ala Phe Ile Ile His Glu Val Tyr Glu Glu Gly Ala Ala Cys Lys
              1585                1590                1595
Asp Gly Arg Leu Trp Ala Gly Asp Gln Ile Leu Glu Val Asn Gly Ile
              1600                1605                1610
Asp Leu Arg Lys Ala Thr His Asp Glu Ala Ile Asn Val Leu Arg Gln
         1615                1620                1625
Thr Pro Gln Arg Val Arg Leu Thr Leu Tyr Arg Asp Glu Ala Pro Tyr
1630                1635                1640                1645
Lys Glu Glu Glu Val Cys Asp Thr Leu Thr Ile Glu Leu Gln Lys Lys
                   1650                1655                1660
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Pro Gly Lys Gly Leu Gly Leu Ser Ile Val Gly Lys Arg Asn Asp Thr
            1665   1670   1675

Gly Val Phe Val Ser Asp Ile Val Lys Gly Gly Ile Ala Asp Pro Asp
            1680   1685   1690

Gly Arg Leu Ile Gln Gly Asp Gln Ile Leu Leu Val Asn Gly Glu Asp
        1695   1700   1705

Val Arg Asn Ala Ser Gln Glu Ala Val Ala Ala Leu Leu Lys Cys Ser
1710   1715   1720   1725

Leu Gly Thr Val Thr Leu Glu Val Gly Arg Ile Lys Ala Gly Pro Phe
                1730   1735   1740

His Ser Glu Arg Arg Pro Ser Gln Thr Ser Gln Val Ser Glu Gly Ser
                1745   1750   1755

Leu Ser Ser Phe Thr Phe Pro Leu Ser Gly Ser Ser Thr Ser Glu Ser
            1760   1765   1770

Leu Glu Ser Ser Ser Lys Lys Asn Ala Leu Ala Ser Glu Ile Gln Gly
        1775   1780   1785

Leu Arg Thr Val Glu Met Lys Lys Gly Pro Thr Asp Ser Leu Gly Ile
1790   1795   1800   1805

Ser Ile Ala Gly Gly Val Gly Ser Pro Leu Gly Asp Val Pro Ile Phe
                1810   1815   1820

Ile Ala Met Met His Pro Thr Gly Val Ala Ala Gln Thr Gln Lys Leu
                1825   1830   1835

Arg Val Gly Asp Arg Ile Val Thr Ile Cys Gly Thr Ser Thr Glu Gly
            1840   1845   1850

Met Thr His Thr Gln Ala Val Asn Leu Leu Lys Asn Ala Ser Gly Ser
        1855   1860   1865

Ile Glu Met Gln Val Val Ala Gly Gly Asp Val Ser Val Val Thr Gly

```
        1870              1875              1880              1885
His His Gln Glu Pro Ala Ser Ser Ser Leu Ser Phe Thr Gly Leu Thr
              1890              1895              1900
Ser Thr Ser Ile Phe Gln Asp Asp Leu Gly Pro Pro Gln Cys Lys Ser
              1905              1910              1915
Ile Thr Leu Glu Arg Gly Pro Asp Gly Leu Gly Phe Ser Ile Val Gly
              1920              1925              1930
Gly Tyr Gly Ser Pro His Gly Asp Leu Pro Ile Tyr Val Lys Thr Val
          1935              1940              1945
Phe Ala Lys Gly Ala Ala Ser Glu Asp Gly Arg Leu Lys Arg Gly Asp
    1950              1955              1960              1965
Gln Ile Ile Ala Val Asn Gly Gln Ser Leu Glu Gly Val Thr His Glu
              1970              1975              1980
Glu Ala Val Ala Ile Leu Lys Arg Thr Lys Gly Thr Val Thr Leu Met
              1985              1990              1995
Val Leu Ser
        2000
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<210> 83

<211> 2070

<212> PRT

<213> Homo sapience

<400> 83

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        Met Leu Glu Ala Ile Asp Lys Asn Arg Ala Leu His Ala
        1                 5                 10
Ala Glu Arg Leu Gln Thr Lys Leu Arg Glu Arg Gly Asp Val Ala Asn
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            15                  20                  25
Glu Asp Lys Leu Ser Leu Leu Lys Ser Val Leu Gln Ser Pro Leu Phe
  30                  35                  40                  45
Ser Gln Ile Leu Ser Leu Gln Thr Ser Val Gln Gln Leu Lys Asp Gln
                  50                  55                  60
Val Asn Ile Ala Thr Ser Ala Thr Ser Asn Ile Glu Tyr Ala His Val
                  65                  70                  75
Pro His Leu Ser Pro Ala Val Ile Pro Thr Leu Gln Asn Glu Ser Phe
                  80                  85                  90
Leu Leu Ser Pro Asn Asn Gly Asn Leu Glu Ala Leu Thr Gly Pro Gly
              95                 100                 105
Ile Pro His Ile Asn Gly Lys Pro Ala Cys Asp Glu Phe Asp Gln Leu
110                 115                 120                 125
Ile Lys Asn Met Ala Gln Gly Arg His Val Glu Val Phe Glu Leu Leu
                 130                 135                 140
Lys Pro Pro Ser Gly Gly Leu Gly Phe Ser Val Val Gly Leu Arg Ser
                 145                 150                 155
Glu Asn Arg Gly Glu Leu Gly Ile Phe Val Gln Glu Ile Gln Glu Gly
                 160                 165                 170
Ser Val Ala His Arg Asp Gly Arg Leu Lys Glu Thr Asp Gln Ile Leu
                 175                 180                 185
Ala Ile Asn Gly Gln Ala Leu Asp Gln Thr Ile Thr His Gln Gln Ala
190                 195                 200                 205
Ile Ser Ile Leu Gln Lys Ala Lys Asp Thr Val Gln Leu Val Ile Ala
                 210                 215                 220
Arg Gly Ser Leu Pro Gln Leu Val Ser Pro Ile Val Ser Arg Ser Pro
                 225                 230                 235
```

Ser Ala Ala Ser Thr Ile Ser Ala His Ser Asn Pro Val His Trp Gln
        240   245   250

His Met Glu Thr Ile Glu Leu Val Asn Asp Gly Ser Gly Leu Gly Phe
        255   260   265

Gly Ile Ile Gly Gly Lys Ala Thr Gly Val Ile Val Lys Thr Ile Leu
270   275   280   285

Pro Gly Gly Val Ala Asp Gln His Gly Arg Leu Cys Ser Gly Asp His
                290   295   300

Ile Leu Lys Ile Gly Asp Thr Asp Leu Ala Gly Met Ser Ser Glu Gln
                305   310   315

Val Ala Gln Val Leu Arg Gln Cys Gly Asn Arg Val Lys Leu Met Ile
        320   325   330

Ala Arg Ser Ala Ile Glu Glu Arg Thr Ala Pro Thr Ala Leu Gly Ile
        335   340   345

Thr Leu Ser Ser Ser Pro Thr Ser Thr Pro Glu Leu Arg Val Asp Ala
350   355   360   365

Ser Thr Gln Lys Gly Glu Glu Ser Glu Thr Phe Asp Val Glu Leu Thr
                370   375   380

Lys Asn Val Gln Gly Leu Gly Ile Thr Ile Ala Gly Tyr Ile Gly Asp
        385   390   395

Lys Lys Leu Glu Pro Ser Gly Ile Phe Val Lys Ser Ile Thr Lys Ser
        400   405   410

Ser Ala Val Glu His Asp Gly Arg Ile Gln Ile Gly Asp Gln Ile Ile
        415   420   425

Ala Val Asp Gly Thr Asn Leu Gln Gly Phe Thr Asn Gln Gln Ala Val
430   435   440   445

Glu Val Leu Arg His Thr Gly Gln Thr Val Leu Leu Thr Leu Met Arg

```
              450                455                460
Arg Gly Met Lys Gln Glu Ala Glu Leu Met Ser Arg Glu Asp Val Thr
         465                470                475
Lys Asp Ala Asp Leu Ser Pro Val Asn Ala Ser Ile Ile Lys Glu Asn
         480                485                490
Tyr Glu Lys Asp Glu Asp Phe Leu Ser Ser Thr Arg Asn Thr Asn Ile
         495                500                505
Leu Pro Thr Glu Glu Glu Gly Tyr Pro Leu Leu Ser Ala Glu Ile Glu
510                515                520                525
Glu Ile Glu Asp Ala Gln Lys Gln Glu Ala Ala Leu Leu Thr Lys Trp
              530                535                540
Gln Arg Ile Met Gly Ile Asn Tyr Glu Ile Val Val Ala His Val Ser
              545                550                555
Lys Phe Ser Glu Asn Ser Gly Leu Gly Ile Ser Leu Glu Ala Thr Val
         560                565                570
Gly His His Phe Ile Arg Ser Val Leu Pro Glu Gly Pro Val Gly His
    575                580                585
Ser Gly Lys Leu Phe Ser Gly Asp Glu Leu Leu Glu Val Asn Gly Ile
590                595                600                605
Thr Leu Leu Gly Glu Asn His Gln Asp Val Val Asn Ile Leu Lys Glu
              610                615                620
Leu Pro Ile Glu Val Thr Met Val Cys Cys Arg Arg Thr Val Pro Pro
         625                630                635
Thr Thr Gln Ser Glu Leu Asp Ser Leu Asp Leu Cys Asp Ile Glu Leu
         640                645                650
Thr Glu Lys Pro His Val Asp Leu Gly Glu Phe Ile Gly Ser Ser Glu
    655                660                665
```

Pro Glu Asp Pro Val Leu Ala Met Thr Asp Ala Gly Gln Ser Thr Glu

670   675   680   685

Glu Val Gln Ala Pro Leu Ala Met Trp Glu Ala Gly Ile Gln His Ile

            690   695   700

Met Leu Glu Lys Gly Ser Lys Gly Leu Gly Phe Ser Ile Leu Asp Tyr

            705   710   715

Gln Asp Pro Ile Asp Pro Ala Ser Thr Val Ile Ile Ile Arg Ser Leu

            720   725   730

Val Pro Gly Gly Ile Ala Glu Lys Asp Gly Arg Leu Leu Pro Gly Asp

            735   740   745

Arg Leu Met Phe Val Asn Asp Val Asn Leu Glu Asn Ser Ser Leu Glu

750   755   760   765

Glu Ala Val Glu Ala Leu Lys Gly Ala Pro Ser Gly Thr Val Arg Ile

            770   775   780

Gly Val Ala Lys Pro Leu Pro Leu Ser Pro Glu Glu Gly Tyr Val Ser

            785   790   795

Ala Lys Glu Asp Ser Phe Leu Tyr Pro Pro His Ser Cys Glu Glu Ala

            800   805   810

Gly Leu Ala Asp Lys Pro Leu Phe Arg Ala Asp Leu Ala Leu Val Gly

    815   820   825

Thr Asn Asp Ala Asp Leu Val Asp Glu Ser Thr Phe Glu Ser Pro Tyr

830   835   840   845

Ser Pro Glu Asn Asp Ser Ile Tyr Ser Thr Gln Ala Ser Ile Leu Ser

            850   855   860

Leu His Gly Ser Ser Cys Gly Asp Gly Leu Asn Tyr Gly Ser Ser Leu

            865   870   875

Pro Ser Ser Pro Pro Lys Asp Val Ile Glu Asn Ser Cys Asp Pro Val

```
                880                    885                    890
     Leu Asp Leu His Met Ser Leu Glu Glu Leu Tyr Thr Gln Asn Leu Leu
         895                    900                    905
     Glu Arg Gln Asp Glu Asn Thr Pro Ser Val Asp Ile Ser Met Gly Pro
     910                    915                    920                    925
     Ala Ser Gly Phe Thr Ile Asn Asp Tyr Thr Pro Ala Asn Ala Ile Glu
                    930                    935                    940
     Gln Gln Tyr Glu Cys Glu Asn Thr Ile Val Trp Thr Glu Ser His Leu
                    945                    950                    955
     Pro Ser Glu Val Ile Ser Ser Ala Glu Leu Pro Ser Val Leu Pro Asp
                    960                    965                    970
     Ser Ala Gly Lys Gly Ser Glu Tyr Leu Leu Glu Gln Ser Ser Leu Ala
         975                    980                    985
     Cys Asn Ala Glu Cys Val Met Leu Gln Asn Val Ser Lys Glu Ser Phe
     990                    995                    1000                   1005
     Glu Arg Thr Ile Asn Ile Ala Lys Gly Asn Ser Ser Leu Gly Met Thr
                    1010                   1015                   1020
     Val Ser Ala Asn Lys Asp Gly Leu Gly Met Ile Val Arg Ser Ile Ile
                    1025                   1030                   1035
     His Gly Gly Ala Ile Ser Arg Asp Gly Arg Ile Ala Ile Gly Asp Cys
         1040                   1045                   1050
     Ile Leu Ser Ile Asn Glu Glu Ser Thr Ile Ser Val Thr Asn Ala Gln
         1055                   1060                   1065
     Ala Arg Ala Met Leu Arg Arg His Ser Leu Ile Gly Pro Asp Ile Lys
     1070                   1075                   1080                   1085
     Ile Thr Tyr Val Pro Ala Glu His Leu Glu Glu Phe Lys Ile Ser Leu
                    1090                   1095                   1100
```

Gly Gln Gln Ser Gly Arg Val Met Ala Leu Asp Ile Phe Ser Ser Tyr
            1105   1110   1115

Thr Gly Arg Asp Ile Pro Glu Leu Pro Glu Arg Glu Glu Gly Glu Gly
            1120   1125   1130

Glu Glu Ser Glu Leu Gln Asn Thr Ala Tyr Ser Asn Trp Asn Gln Pro
         1135   1140   1145

Arg Arg Val Glu Leu Trp Arg Glu Pro Ser Lys Ser Leu Gly Ile Ser
1150   1155   1160   1165

Ile Val Gly Gly Arg Gly Met Gly Ser Arg Leu Ser Asn Gly Glu Val
            1170   1175   1180

Met Arg Gly Ile Phe Ile Lys His Val Leu Glu Asp Arg Pro Ala Gly
               1185   1190   1195

Lys Asn Gly Thr Leu Lys Pro Gly Asp Arg Ile Val Glu Val Asp Gly
            1200   1205   1210

Met Asp Leu Arg Asp Ala Ser His Glu Gln Ala Val Glu Ala Ile Arg
         1215   1220   1225

Lys Ala Gly Asn Pro Val Val Phe Met Val Gln Ser Ile Ile Asn Arg
1230   1235   1240   1245

Pro Arg Lys Ser Pro Leu Pro Ser Leu Leu His Asn Leu Tyr Pro Lys
                  1250   1255   1260

Tyr Asn Phe Ser Ser Thr Asn Pro Phe Ala Asp Ser Leu Gln Ile Asn
               1265   1270   1275

Ala Asp Lys Ala Pro Ser Gln Ser Glu Ser Glu Pro Glu Lys Ala Pro
            1280   1285   1290

Leu Cys Ser Val Pro Pro Pro Pro Ser Ala Phe Ala Glu Met Gly
   1295   1300   1305

Ser Asp His Thr Gln Ser Ser Ala Ser Lys Ile Ser Gln Asp Val Asp

```
      1310                  1315                  1320                  1325
Lys Glu Asp Glu Phe Gly Tyr Ser Trp Lys Asn Ile Arg Glu Arg Tyr
                  1330                  1335                  1340
Gly Thr Leu Thr Gly Glu Leu His Met Ile Glu Leu Glu Lys Gly His
                  1345                  1350                  1355
Ser Gly Leu Gly Leu Ser Leu Ala Gly Asn Lys Asp Arg Ser Arg Met
             1360                  1365                  1370
Ser Val Phe Ile Val Gly Ile Asp Pro Asn Gly Ala Ala Gly Lys Asp
          1375                  1380                  1385
Gly Arg Leu Gln Ile Ala Asp Glu Leu Leu Glu Ile Asn Gly Gln Ile
     1390                  1395                  1400                  1405
Leu Tyr Gly Arg Ser His Gln Asn Ala Ser Ser Ile Ile Lys Cys Ala
                  1410                  1415                  1420
Pro Ser Lys Val Lys Ile Ile Phe Ile Arg Asn Lys Asp Ala Val Asn
                  1425                  1430                  1435
Gln Met Ala Val Cys Pro Gly Asn Ala Val Glu Pro Leu Pro Ser Asn
                  1440                  1445                  1450
Ser Glu Asn Leu Gln Asn Lys Glu Thr Glu Pro Thr Val Thr Thr Ser
             1455                  1460                  1465
Asp Ala Ala Val Asp Leu Ser Ser Phe Lys Asn Val Gln His Leu Glu
     1470                  1475                  1480                  1485
Leu Pro Lys Asp Gln Gly Gly Leu Gly Ile Ala Ile Ser Glu Glu Asp
                  1490                  1495                  1500
Thr Leu Ser Gly Val Ile Ile Lys Ser Leu Thr Glu His Gly Val Ala
             1505                  1510                  1515
Ala Thr Asp Gly Arg Leu Lys Val Gly Asp Gln Ile Leu Ala Val Asp
          1520                  1525                  1530
```

Asp Glu Ile Val Val Gly Tyr Pro Ile Glu Lys Phe Ile Ser Leu Leu
    1535   1540   1545

Lys Thr Ala Lys Met Thr Val Lys Leu Thr Ile His Ala Glu Asn Pro
1550   1555   1560   1565

Asp Ser Gln Ala Val Pro Ser Ala Ala Gly Ala Ala Ser Gly Glu Lys
                1570   1575   1580

Lys Asn Ser Ser Gln Ser Leu Met Val Pro Gln Ser Gly Ser Pro Glu
                1585   1590   1595

Pro Glu Ser Ile Arg Asn Thr Ser Arg Ser Ser Thr Pro Ala Ile Phe
            1600   1605   1610

Ala Ser Asp Pro Ala Thr Cys Pro Ile Ile Pro Gly Cys Glu Thr Thr
        1615   1620   1625

Ile Glu Ile Ser Lys Gly Arg Thr Gly Leu Gly Leu Ser Ile Val Gly
1630   1635   1640   1645

Gly Ser Asp Thr Leu Leu Gly Ala Phe Ile Ile His Glu Val Tyr Glu
                1650   1655   1660

Glu Gly Ala Ala Cys Lys Asp Gly Arg Leu Trp Ala Gly Asp Gln Ile
                1665   1670   1675

Leu Glu Val Asn Gly Ile Asp Leu Arg Lys Ala Thr His Asp Glu Ala
            1680   1685   1690

Ile Asn Val Leu Arg Gln Thr Pro Gln Arg Val Arg Leu Thr Leu Tyr
        1695   1700   1705

Arg Asp Glu Ala Pro Tyr Lys Glu Glu Glu Val Cys Asp Thr Leu Thr
1710   1715   1720   1725

Ile Glu Leu Gln Lys Lys Pro Gly Lys Gly Leu Gly Leu Ser Ile Val
                1730   1735   1740

Gly Lys Arg Asn Asp Thr Gly Val Phe Val Ser Asp Ile Val Lys Gly

```
                1745                1750                1755
Gly Ile Ala Asp Pro Asp Gly Arg Leu Ile Gln Gly Asp Gln Ile Leu
           1760                1765                1770
Leu Val Asn Gly Glu Asp Val Arg Asn Ala Ser Gln Glu Ala Val Ala
        1775                1780                1785
Ala Leu Leu Lys Cys Ser Leu Gly Thr Val Thr Leu Glu Val Gly Arg
 1790                1795                1800                1805
Ile Lys Ala Gly Pro Phe His Ser Glu Arg Arg Pro Ser Gln Thr Ser
                1810                1815                1820
Gln Val Ser Glu Gly Ser Leu Ser Ser Phe Thr Phe Pro Leu Ser Gly
           1825                1830                1835
Ser Ser Thr Ser Glu Ser Leu Glu Ser Ser Ser Lys Lys Asn Ala Leu
        1840                1845                1850
Ala Ser Glu Ile Gln Gly Leu Arg Thr Val Glu Met Lys Lys Gly Pro
     1855                1860                1865
Thr Asp Ser Leu Gly Ile Ser Ile Ala Gly Gly Val Gly Ser Pro Leu
 1870                1875                1880                1885
Gly Asp Val Pro Ile Phe Ile Ala Met Met His Pro Thr Gly Val Ala
                1890                1895                1900
Ala Gln Thr Gln Lys Leu Arg Val Gly Asp Arg Ile Val Thr Ile Cys
           1905                1910                1915
Gly Thr Ser Thr Glu Gly Met Thr His Thr Gln Ala Val Asn Leu Leu
        1920                1925                1930
Lys Asn Ala Ser Gly Ser Ile Glu Met Gln Val Val Ala Gly Gly Asp
     1935                1940                1945
Val Ser Val Val Thr Gly His His Gln Glu Pro Ala Ser Ser Ser Leu
 1950                1955                1960                1965
```

Ser Phe Thr Gly Leu Thr Ser Thr Ser Ile Phe Gln Asp Asp Leu Gly

              1970   1975   1980

Pro Pro Gln Cys Lys Ser Ile Thr Leu Glu Arg Gly Pro Asp Gly Leu

              1985   1990   1995

Gly Phe Ser Ile Val Gly Gly Tyr Gly Ser Pro His Gly Asp Leu Pro

           2000   2005   2010

Ile Tyr Val Lys Thr Val Phe Ala Lys Gly Ala Ala Ser Glu Asp Gly

         2015   2020   2025

Arg Leu Lys Arg Gly Asp Gln Ile Ile Ala Val Asn Gly Gln Ser Leu

2030   2035   2040   2045

Glu Gly Val Thr His Glu Glu Ala Val Ala Ile Leu Lys Arg Thr Lys

              2050   2055   2060

Gly Thr Val Thr Leu Met Val Leu Ser

           2065   2070

<210> 84

<211> 1239

<212> PRT

<213> Homo sapience

<400> 84

                Met Leu Glu Ala Ile Asp Lys Asn Arg Ala Leu His Ala

                1   5   10

Ala Glu Arg Leu Gln Thr Lys Leu Arg Glu Arg Gly Asp Val Ala Asn

   15   20   25

Glu Asp Lys Leu Ser Leu Leu Lys Ser Val Leu Gln Ser Pro Leu Phe

30   35   40   45

Ser Gln Ile Leu Ser Leu Gln Thr Ser Val Gln Gln Leu Lys Asp Gln
                   50   55   60

Val Asn Ile Ala Thr Ser Ala Thr Ser Asn Ile Glu Tyr Ala His Val
                   65   70   75

Pro His Leu Ser Pro Ala Val Ile Pro Thr Leu Gln Asn Glu Ser Phe
                   80   85   90

Leu Leu Ser Pro Asn Asn Gly Asn Leu Glu Ala Leu Thr Gly Pro Gly
                95   100   105

Ile Pro His Ile Asn Gly Lys Pro Ala Cys Asp Glu Phe Asp Gln Leu
110   115   120   125

Ile Lys Asn Met Ala Gln Gly Arg His Val Glu Val Phe Glu Leu Leu
                 130   135   140

Lys Pro Pro Ser Gly Gly Leu Gly Phe Ser Val Val Gly Leu Arg Ser
                 145   150   155

Glu Asn Arg Gly Glu Leu Gly Ile Phe Val Gln Glu Ile Gln Glu Gly
               160   165   170

Ser Val Ala His Arg Asp Gly Arg Leu Lys Glu Thr Asp Gln Ile Leu
         175   180   185

Ala Ile Asn Gly Gln Ala Leu Asp Gln Thr Ile Thr His Gln Gln Ala
190   195   200   205

Ile Ser Ile Leu Gln Lys Ala Lys Asp Thr Val Gln Leu Val Ile Ala
                 210   215   220

Arg Gly Ser Leu Pro Gln Leu Val Ser Pro Ile Val Ser Arg Ser Pro
                 225   230   235

Ser Ala Ala Ser Thr Ile Ser Ala His Ser Asn Pro Val His Trp Gln
                 240   245   250

His Met Glu Thr Ile Glu Leu Val Asn Asp Gly Ser Gly Leu Gly Phe

```
             255                      260                      265
Gly Ile Ile Gly Gly Lys Ala Thr Gly Val Ile Val Lys Thr Ile Leu
270                  275                  280                      285
Pro Gly Gly Val Ala Asp Gln His Gly Arg Leu Cys Ser Gly Asp His
                 290                      295                  300
Ile Leu Lys Ile Gly Asp Thr Asp Leu Ala Gly Met Ser Ser Glu Gln
                 305                      310                  315
Val Ala Gln Val Leu Arg Gln Cys Gly Asn Arg Val Lys Leu Met Ile
             320                  325                  330
Ala Arg Ser Ala Ile Glu Glu Arg Thr Ala Pro Thr Ala Leu Gly Ile
         335                  340                  345
Thr Leu Ser Ser Ser Pro Thr Ser Thr Pro Glu Leu Arg Val Asp Ala
350                  355                  360                  365
Ser Thr Gln Lys Gly Glu Glu Ser Glu Thr Phe Asp Val Glu Leu Thr
                 370                      375                  380
Lys Asn Val Gln Gly Leu Gly Ile Thr Ile Ala Gly Tyr Ile Gly Asp
                 385                  390                  395
Lys Lys Leu Glu Pro Ser Gly Ile Phe Val Lys Ser Ile Thr Lys Ser
             400                  405                  410
Ser Ala Val Glu His Asp Gly Arg Ile Gln Ile Gly Asp Gln Ile Ile
         415                  420                  425
Ala Val Asp Gly Thr Asn Leu Gln Gly Phe Thr Asn Gln Gln Ala Val
430                  435                  440                  445
Glu Val Leu Arg His Thr Gly Gln Thr Val Leu Leu Thr Leu Met Arg
                 450                      455                  460
Arg Gly Met Lys Gln Glu Ala Glu Leu Met Ser Arg Glu Asp Val Thr
             465                  470                  475
```

Lys Asp Ala Asp Leu Ser Pro Val Asn Ala Ser Ile Ile Lys Glu Asn
          480   485   490

Tyr Glu Lys Asp Glu Asp Phe Leu Ser Ser Thr Arg Asn Thr Asn Ile
          495   500   505

Leu Pro Thr Glu Glu Glu Gly Tyr Pro Leu Leu Ser Ala Glu Ile Glu
510   515   520   525

Glu Ile Glu Asp Ala Gln Lys Gln Glu Ala Ala Leu Leu Thr Lys Trp
                530   535   540

Gln Arg Ile Met Gly Ile Asn Tyr Glu Ile Val Val Ala His Val Ser
                545   550   555

Lys Phe Ser Glu Asn Ser Gly Leu Gly Ile Ser Leu Glu Ala Thr Val
          560   565   570

Gly His His Phe Ile Arg Ser Val Leu Pro Glu Gly Pro Val Gly His
          575   580   585

Ser Gly Lys Leu Phe Ser Gly Asp Glu Leu Leu Glu Val Asn Gly Ile
590   595   600   605

Thr Leu Leu Gly Glu Asn His Gln Asp Val Val Asn Ile Leu Lys Glu
                610   615   620

Leu Pro Ile Glu Val Thr Met Val Cys Cys Arg Arg Thr Val Pro Pro
                625   630   635

Thr Thr Gln Ser Glu Leu Asp Ser Leu Asp Leu Cys Asp Ile Glu Leu
          640   645   650

Thr Glu Lys Pro His Val Asp Leu Gly Glu Phe Ile Gly Ser Ser Glu
          655   660   665

Pro Glu Asp Pro Val Leu Ala Met Thr Asp Ala Gly Gln Ser Thr Glu
670   675   680   685

Glu Val Gln Ala Pro Leu Ala Met Trp Glu Ala Gly Ile Gln His Ile

```
                    690                 695                 700
Met Leu Glu Lys Gly Ser Lys Gly Leu Gly Phe Ser Ile Leu Asp Tyr
              705                 710                 715
Gln Asp Pro Ile Asp Pro Ala Ser Thr Val Ile Ile Ile Arg Ser Leu
         720                 725                 730
Val Pro Gly Gly Ile Ala Glu Lys Asp Gly Arg Leu Leu Pro Gly Asp
       735                 740                 745
Arg Leu Met Phe Val Asn Asp Val Asn Leu Glu Asn Ser Ser Leu Glu
750                 755                 760                 765
Glu Ala Val Glu Ala Leu Lys Gly Ala Pro Ser Gly Thr Val Arg Ile
                   770                 775                 780
Gly Val Ala Lys Pro Leu Pro Leu Ser Pro Glu Glu Gly Tyr Val Ser
              785                 790                 795
Ala Lys Glu Asp Ser Phe Leu Tyr Pro Pro His Ser Cys Glu Glu Ala
         800                 805                 810
Gly Leu Ala Asp Lys Pro Leu Phe Arg Ala Asp Leu Ala Leu Val Gly
       815                 820                 825
Thr Asn Asp Ala Asp Leu Val Asp Glu Ser Thr Phe Glu Ser Pro Tyr
830                 835                 840                 845
Ser Pro Glu Asn Asp Ser Ile Tyr Ser Thr Gln Ala Ser Ile Leu Ser
                   850                 855                 860
Leu His Gly Ser Ser Cys Gly Asp Gly Leu Asn Tyr Gly Ser Ser Leu
              865                 870                 875
Pro Ser Ser Pro Pro Lys Asp Val Ile Glu Asn Ser Cys Asp Pro Val
         880                 885                 890
Leu Asp Leu His Met Ser Leu Glu Glu Leu Tyr Thr Gln Asn Leu Leu
   895                 900                 905
```

Glu Arg Gln Asp Glu Asn Thr Pro Ser Val Asp Ile Ser Met Gly Pro
910   915   920   925

Ala Ser Gly Phe Thr Ile Asn Asp Tyr Thr Pro Ala Asn Ala Ile Glu
                930   935   940

Gln Gln Tyr Glu Cys Glu Asn Thr Ile Val Trp Thr Glu Ser His Leu
                945   950   955

Pro Ser Glu Val Ile Ser Ser Ala Glu Leu Pro Ser Val Leu Pro Asp
                960   965   970

Ser Ala Gly Lys Gly Ser Glu His Leu Leu Glu Gln Ser Ser Leu Ala
                975   980   985

Cys Asn Ala Glu Cys Val Met Leu Gln Asn Val Ser Lys Glu Ser Phe
990   995   1000   1005

Glu Arg Thr Ile Asn Ile Ala Lys Gly Asn Ser Ser Leu Gly Met Thr
                1010   1015   1020

Val Ser Ala Asn Lys Asp Gly Leu Gly Met Ile Val Arg Ser Ile Ile
                1025   1030   1035

His Gly Gly Ala Ile Ser Arg Asp Gly Arg Ile Ala Ile Gly Asp Cys
                1040   1045   1050

Ile Leu Ser Ile Asn Glu Glu Ser Thr Ile Ser Val Thr Asn Ala Gln
                1055   1060   1065

Ala Arg Ala Met Leu Arg Arg His Ser Leu Ile Gly Pro Asp Ile Lys
1070   1075   1080   1085

Ile Thr Tyr Val Pro Ala Glu His Leu Glu Glu Phe Lys Ile Ser Leu
                1090   1095   1100

Gly Gln Gln Ser Gly Arg Val Met Ala Leu Asp Ile Phe Ser Ser Tyr
                1105   1110   1115

Thr Gly Arg Asp Ile Pro Glu Leu Pro Glu Arg Glu Glu Gly Glu Gly

```
       1120                1125                1130
Glu Glu Ser Glu Leu Gln Asn Thr Ala Tyr Ser Asn Trp Asn Gln Pro
       1135                1140                1145
Arg Arg Val Glu Leu Trp Arg Glu Pro Ser Lys Ser Leu Gly Ile Ser
  1150                1155                1160                1165
Ile Val Gly Gly Arg Gly Met Gly Ser Arg Leu Ser Asn Gly Glu Val
               1170                1175                1180
Met Arg Gly Ile Phe Ile Lys His Val Leu Glu Asp Ser Pro Ala Gly
           1185                1190                1195
Lys Asn Gly Thr Leu Lys Pro Gly Asp Arg Ile Val Glu Val Asp Gly
         1200                1205                1210
Met Asp Leu Arg Asp Ala Ser His Glu Gln Ala Val Glu Ala Ile Arg
     1215                1220                1225
Lys Ala Gly Asn Pro Val Val Phe Met Val
1230                1235
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<210> 85

<211> 6540

<212> DNA

<213> Homo sapience

<220>

<221> CDS

<222> (71)...(6070)

<400> 85

ttctcagtca cgcagttcca ttttaattgc tgttaatcat ttcagagaag aacactgaac   60

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tttgaaaaaa atg ttg gaa gcc att gac aaa aat cgg gcc ctg cat gca        109
            Met Leu Glu Ala Ile Asp Lys Asn Arg Ala Leu His Ala
             1               5                 10


gca gag cgc ttg caa acc aag ctg cga gaa cgt ggg gat gta gca aat        157
Ala Glu Arg Leu Gln Thr Lys Leu Arg Glu Arg Gly Asp Val Ala Asn
     15                  20                25


gaa gac aaa ctg agc ctt ctg aag tca gtc ctg cag agc cct ctc ttc        205
Glu Asp Lys Leu Ser Leu Leu Lys Ser Val Leu Gln Ser Pro Leu Phe
 30                  35                40                45


agt cag att ctg agc ctt cag act tct gta cag cag ctg aaa gac cag        253
Ser Gln Ile Leu Ser Leu Gln Thr Ser Val Gln Gln Leu Lys Asp Gln
                 50                55                60


gta aat att gca act tca gca act tca aat att gaa tat gcc cac gtt        301
Val Asn Ile Ala Thr Ser Ala Thr Ser Asn Ile Glu Tyr Ala His Val
             65                70                75


cct cat ctc agc cca gct gtg att cct act ctg caa aat gaa tcg ttt       349
Pro His Leu Ser Pro Ala Val Ile Pro Thr Leu Gln Asn Glu Ser Phe
         80                85                90


tta tta tcc cca aac aat ggg aat ctg gaa gca ctt aca gga cct ggt        397
Leu Leu Ser Pro Asn Asn Gly Asn Leu Glu Ala Leu Thr Gly Pro Gly
```

95   100   105

att cca cac att aat ggg aaa cct gct tgt gat gaa ttt gat cag ctt   445
Ile Pro His Ile Asn Gly Lys Pro Ala Cys Asp Glu Phe Asp Gln Leu
110   115   120   125

atc aaa aat atg gcc cag ggt cgc cat gta gaa gtt ttt gag ctc ctc   493
Ile Lys Asn Met Ala Gln Gly Arg His Val Glu Val Phe Glu Leu Leu
                    130   135   140

aaa cct cca tct gga ggc ctt ggg ttt agt gtt gtg gga cta aga agt   541
Lys Pro Pro Ser Gly Gly Leu Gly Phe Ser Val Val Gly Leu Arg Ser
                    145   150   155

gaa aac aga gga gag ctg gga ata ttt gtt caa gag ata caa gag ggc   589
Glu Asn Arg Gly Glu Leu Gly Ile Phe Val Gln Glu Ile Gln Glu Gly
                    160   165   170

agt gtg gcc cat aga gat gga aga ttg aaa gaa act gat caa att ctt   637
Ser Val Ala His Arg Asp Gly Arg Leu Lys Glu Thr Asp Gln Ile Leu
            175   180   185

gct atc aat gga cag gct ctt gat cag aca att aca cat cag cag gct   685
Ala Ile Asn Gly Gln Ala Leu Asp Gln Thr Ile Thr His Gln Gln Ala
190   195   200   205

atc agc atc ctg cag aaa gcc aaa gat act gtc cag cta gtt att gcc   733

Ile Ser Ile Leu Gln Lys Ala Lys Asp Thr Val Gln Leu Val Ile Ala
           210   215   220

aga ggc tca ttg cct cag ctt gtc agc ccc ata gtt tcc cgt tct cca   781
Arg Gly Ser Leu Pro Gln Leu Val Ser Pro Ile Val Ser Arg Ser Pro
           225   230   235

tct gca gcc agc aca att tca gct cac tct aat ccg gtt cac tgg caa   829
Ser Ala Ala Ser Thr Ile Ser Ala His Ser Asn Pro Val His Trp Gln
           240   245   250

cac atg gaa acg att gaa ttg gtg aat gat gga tct ggt ttg gga ttt   877
His Met Glu Thr Ile Glu Leu Val Asn Asp Gly Ser Gly Leu Gly Phe
           255   260   265

ggc atc ata gga gga aaa gca act ggt gtg ata gta aaa acc att ctg   925
Gly Ile Ile Gly Gly Lys Ala Thr Gly Val Ile Val Lys Thr Ile Leu
270   275   280   285

cct gga gga gta gct gat cag cat ggg cgt tta tgc agt gga gac cac   973
Pro Gly Gly Val Ala Asp Gln His Gly Arg Leu Cys Ser Gly Asp His
           290   295   300

att cta aag att ggt gac aca gat cta gca gga atg agc agt gag caa   1021
Ile Leu Lys Ile Gly Asp Thr Asp Leu Ala Gly Met Ser Ser Glu Gln
           305   310   315

gta gca caa gtc ctt agg caa tgt gga aat aga gtt aag ttg atg att   1069
Val Ala Gln Val Leu Arg Gln Cys Gly Asn Arg Val Lys Leu Met Ile
         320   325   330

gca aga agt gcc ata gaa gaa cgt aca gca ccc act gct ttg ggc atc   1117
Ala Arg Ser Ala Ile Glu Glu Arg Thr Ala Pro Thr Ala Leu Gly Ile
         335   340   345

acc ctc tcc tca tcc cca act tca acg cca gag ttg cgg gtt gat gct   1165
Thr Leu Ser Ser Ser Pro Thr Ser Thr Pro Glu Leu Arg Val Asp Ala
         350   355   360   365

tct act cag aaa ggt gaa gaa agt gag aca ttt gat gta gaa ctc act   1213
Ser Thr Gln Lys Gly Glu Glu Ser Glu Thr Phe Asp Val Glu Leu Thr
              370   375   380

aaa aat gtc caa gga tta gga att acc att gct ggc tac att gga gat   1261
Lys Asn Val Gln Gly Leu Gly Ile Thr Ile Ala Gly Tyr Ile Gly Asp
              385   390   395

aaa aaa ttg gaa cct tca gga atc ttt gta aag agc att aca aaa agc   1309
Lys Lys Leu Glu Pro Ser Gly Ile Phe Val Lys Ser Ile Thr Lys Ser
         400   405   410

agt gcc gtt gag cat gat gga aga atc caa att gga gac caa att ata   1357
Ser Ala Val Glu His Asp Gly Arg Ile Gln Ile Gly Asp Gln Ile Ile
         415   420   425

```
gca gta gat ggc aca aac ctt cag ggt ttt act aat cag caa gca gta     1405
Ala Val Asp Gly Thr Asn Leu Gln Gly Phe Thr Asn Gln Gln Ala Val
430             435             440             445


gag gta ttg cga cat aca gga caa act gtg ctc ctg aca cta atg agg     1453
Glu Val Leu Arg His Thr Gly Gln Thr Val Leu Leu Thr Leu Met Arg
                450             455             460


aga gga atg aag cag gaa gcc gag ctc atg tca agg gaa gac gtc aca     1501
Arg Gly Met Lys Gln Glu Ala Glu Leu Met Ser Arg Glu Asp Val Thr
                465             470             475


aaa gat gca gat ttg tct cct gtt aat gcc agc ata atc aaa gaa aat     1549
Lys Asp Ala Asp Leu Ser Pro Val Asn Ala Ser Ile Ile Lys Glu Asn
                480             485             490


tat gaa aaa gat gaa gat ttt tta tct tcg acg aga aac acc aac ata     1597
Tyr Glu Lys Asp Glu Asp Phe Leu Ser Ser Thr Arg Asn Thr Asn Ile
    495             500             505


tta cca act gaa gaa gaa ggg tat cca tta ctg tca gct gag ata gaa     1645
Leu Pro Thr Glu Glu Glu Gly Tyr Pro Leu Leu Ser Ala Glu Ile Glu
510             515             520             525


gaa ata gaa gat gca caa aaa caa gaa gct gct ctg ctg aca aaa tgg     1693
Glu Ile Glu Asp Ala Gln Lys Gln Glu Ala Ala Leu Leu Thr Lys Trp
```

```
                    530                535                540

caa agg att atg gga att aac tat gaa ata gtg gtg gcc cat gtg agc      1741
Gln Arg Ile Met Gly Ile Asn Tyr Glu Ile Val Val Ala His Val Ser
              545                550                555

aag ttt agt gag aac agt gga ttg ggg ata agc ctg gaa gcg aca gtg      1789
Lys Phe Ser Glu Asn Ser Gly Leu Gly Ile Ser Leu Glu Ala Thr Val
              560                565                570

gga cat cat ttt atc cga tct gtt cta cca gag ggt cct gtt gga cac      1837
Gly His His Phe Ile Arg Ser Val Leu Pro Glu Gly Pro Val Gly His
    575                580                585

agc ggg aag ctc ttc agt gga gac gag cta ttg gaa gta aat ggc ata      1885
Ser Gly Lys Leu Phe Ser Gly Asp Glu Leu Leu Glu Val Asn Gly Ile
590                595                600                605

act tta ctt ggg gaa aat cac caa gat gtg gtg aat atc tta aaa gaa      1933
Thr Leu Leu Gly Glu Asn His Gln Asp Val Val Asn Ile Leu Lys Glu
              610                615                620

ctg cct ata gaa gtg aca atg gtg tgc tgt cgt cga act gtg cca ccc      1981
Leu Pro Ile Glu Val Thr Met Val Cys Cys Arg Arg Thr Val Pro Pro
         625                630                635

acc acc caa tca gaa ttg gat agc ctg gac tta tgt gat att gag cta      2029
```

Thr Thr Gln Ser Glu Leu Asp Ser Leu Asp Leu Cys Asp Ile Glu Leu

     640   645   650

aca gaa aag cct cac gta gat cta ggt gag ttc atc ggg tca tca gag   2077

Thr Glu Lys Pro His Val Asp Leu Gly Glu Phe Ile Gly Ser Ser Glu

     655   660   665

cca gag gat cca gtg ctg gcg atg act gat gcg ggt cag agt aca gaa   2125

Pro Glu Asp Pro Val Leu Ala Met Thr Asp Ala Gly Gln Ser Thr Glu

670   675   680   685

gag gtt caa gca cct ttg gcc atg tgg gag gct ggc att cag cac ata   2173

Glu Val Gln Ala Pro Leu Ala Met Trp Glu Ala Gly Ile Gln His Ile

          690   695   700

atg ctg gag aaa ggg agc aaa gga ctt ggt ttt agc att tta gat tat   2221

Met Leu Glu Lys Gly Ser Lys Gly Leu Gly Phe Ser Ile Leu Asp Tyr

        705   710   715

cag gat cca att gat cca gca agc act gtg att ata att cgt tct ttg   2269

Gln Asp Pro Ile Asp Pro Ala Ser Thr Val Ile Ile Ile Arg Ser Leu

      720   725   730

gtg cct ggc ggc att gct gaa aag gat gga cga ctt ctt cct ggt gac   2317

Val Pro Gly Gly Ile Ala Glu Lys Asp Gly Arg Leu Leu Pro Gly Asp

    735   740   745

```
cga ctc atg ttt gta aac gat gtt aac ttg gaa aac agc agt ctt gag        2365
Arg Leu Met Phe Val Asn Asp Val Asn Leu Glu Asn Ser Ser Leu Glu
750             755             760             765


gaa gct gta gaa gca ctg aag gga gca ccg tca ggg act gtg aga ata        2413
Glu Ala Val Glu Ala Leu Lys Gly Ala Pro Ser Gly Thr Val Arg Ile
                770             775             780


gga gtt gct aag cct tta ccc ctt tca cca gaa gaa ggt tat gtt tct        2461
Gly Val Ala Lys Pro Leu Pro Leu Ser Pro Glu Glu Gly Tyr Val Ser
                785             790             795


gct aag gag gat tcc ttt ctc tac cca cca cac tcc tgt gag gaa gca        2509
Ala Lys Glu Asp Ser Phe Leu Tyr Pro Pro His Ser Cys Glu Glu Ala
                800             805             810


ggg ctg gct gac aaa ccc ctc ttc agg gct gac ttg gct ctg gtg ggc        2557
Gly Leu Ala Asp Lys Pro Leu Phe Arg Ala Asp Leu Ala Leu Val Gly
    815             820             825


aca aat gat gct gac tta gta gat gaa tcc aca ttt gag tct cca tac        2605
Thr Asn Asp Ala Asp Leu Val Asp Glu Ser Thr Phe Glu Ser Pro Tyr
830             835             840             845


tct cct gaa aat gac agc atc tac tct act caa gcc tct att tta tct        2653
Ser Pro Glu Asn Asp Ser Ile Tyr Ser Thr Gln Ala Ser Ile Leu Ser
                850             855             860
```

```
ctt cat ggc agt tct tgt ggt gat ggc ctg aac tat ggt tct tcc ctt          2701
Leu His Gly Ser Ser Cys Gly Asp Gly Leu Asn Tyr Gly Ser Ser Leu
            865                 870                 875


cca tca tct cct cct aag gat gtt att gaa aat tct tgt gat cca gta          2749
Pro Ser Ser Pro Pro Lys Asp Val Ile Glu Asn Ser Cys Asp Pro Val
            880                 885                 890


ctt gat ctg cat atg tct ctg gag gaa cta tat acc cag aat ctc ctg          2797
Leu Asp Leu His Met Ser Leu Glu Glu Leu Tyr Thr Gln Asn Leu Leu
            895                 900                 905


gaa aga cag gat gag aat aca cct tcg gtg gac ata agt atg ggg cct          2845
Glu Arg Gln Asp Glu Asn Thr Pro Ser Val Asp Ile Ser Met Gly Pro
910                 915                 920                 925


gct tct ggc ttt act ata aat gac tac aca cct gca aat gct att gaa          2893
Ala Ser Gly Phe Thr Ile Asn Asp Tyr Thr Pro Ala Asn Ala Ile Glu
                930                 935                 940


caa caa tat gaa tgt gaa aac aca ata gtg tgg act gaa tct cat tta          2941
Gln Gln Tyr Glu Cys Glu Asn Thr Ile Val Trp Thr Glu Ser His Leu
            945                 950                 955


cca agt gaa gtt ata tca agt gca gaa ctt cct tct gtg cta ccc gat          2989
Pro Ser Glu Val Ile Ser Ser Ala Glu Leu Pro Ser Val Leu Pro Asp
```

960   965   970

```
tca gct gga aag ggc tct gag cac ctg ctt gaa cag agc tcc ctg gcc     3037
Ser Ala Gly Lys Gly Ser Glu His Leu Leu Glu Gln Ser Ser Leu Ala
    975               980               985
```

```
tgt aat gct gag tgt gtc atg ctt caa aat gta tct aaa gaa tct ttt     3085
Cys Asn Ala Glu Cys Val Met Leu Gln Asn Val Ser Lys Glu Ser Phe
990               995              1000              1005
```

```
gaa agg act att aat ata gca aaa ggc aat tct agc cta gga atg aca     3133
Glu Arg Thr Ile Asn Ile Ala Lys Gly Asn Ser Ser Leu Gly Met Thr
                1010              1015              1020
```

```
gtt agt gct aat aaa gat ggc ttg ggg atg atc gtt cga agc att att     3181
Val Ser Ala Asn Lys Asp Gly Leu Gly Met Ile Val Arg Ser Ile Ile
                1025              1030              1035
```

```
cat gga ggt gcc att agt cga gat ggc cgg att gcc att ggg gac tgc     3229
His Gly Gly Ala Ile Ser Arg Asp Gly Arg Ile Ala Ile Gly Asp Cys
                1040              1045              1050
```

```
atc ttg tcc att aat gaa gag tct acc atc agt gta acc aat gcc cag     3277
Ile Leu Ser Ile Asn Glu Glu Ser Thr Ile Ser Val Thr Asn Ala Gln
    1055              1060              1065
```

```
gca cga gct atg ttg aga aga cat tct ctc att ggc cct gac ata aaa     3325
```

```
      Ala Arg Ala Met Leu Arg Arg His Ser Leu Ile Gly Pro Asp Ile Lys
      1070                1075                1080                1085


      att act tat gtg cct gca gaa cat ttg gaa gag ttc aaa ata agc ttg       3373
      Ile Thr Tyr Val Pro Ala Glu His Leu Glu Glu Phe Lys Ile Ser Leu
                         1090                1095                1100


      gga caa caa tct gga aga gta atg gca ctg gat att ttt tct tca tac       3421
      Gly Gln Gln Ser Gly Arg Val Met Ala Leu Asp Ile Phe Ser Ser Tyr
                    1105                1110                1115


      act ggc aga gac att cca gaa tta cca gag cga gaa gag gga gag ggt       3469
      Thr Gly Arg Asp Ile Pro Glu Leu Pro Glu Arg Glu Glu Gly Glu Gly
                    1120                1125                1130


      gaa gaa agc gaa ctt caa aac aca gca tat agc aat tgg aat cag ccc       3517
      Glu Glu Ser Glu Leu Gln Asn Thr Ala Tyr Ser Asn Trp Asn Gln Pro
               1135                1140                1145


      agg cgg gtg gaa ctc tgg aga gaa cca agc aaa tcc tta ggc atc agc       3565
      Arg Arg Val Glu Leu Trp Arg Glu Pro Ser Lys Ser Leu Gly Ile Ser
      1150                1155                1160                1165


      att gtt ggt gga cga ggg atg ggg agt cgg cta agc aat gga gaa gtg       3613
      Ile Val Gly Gly Arg Gly Met Gly Ser Arg Leu Ser Asn Gly Glu Val
                    1170                1175                1180
```

```
atg agg ggc att ttc atc aaa cat gtt ctg gaa gat agt cca gct ggc        3661
Met Arg Gly Ile Phe Ile Lys His Val Leu Glu Asp Ser Pro Ala Gly
            1185            1190            1195


aaa aat gga acc ttg aaa cct gga gat aga atc gta gag gca ccc agt        3709
Lys Asn Gly Thr Leu Lys Pro Gly Asp Arg Ile Val Glu Ala Pro Ser
            1200            1205            1210


cag tca gag tca gag cca gag aag gct cca ttg tgc agt gtg ccc cca        3757
Gln Ser Glu Ser Glu Pro Glu Lys Ala Pro Leu Cys Ser Val Pro Pro
        1215            1220            1225


ccc cct cct tca gcc ttt gcc gaa atg ggt agt gat cac aca cag tca        3805
Pro Pro Pro Ser Ala Phe Ala Glu Met Gly Ser Asp His Thr Gln Ser
1230            1235            1240            1245


tct gca agc aaa atc tca caa gat gtg gac aaa gag gat gag ttt ggt        3853
Ser Ala Ser Lys Ile Ser Gln Asp Val Asp Lys Glu Asp Glu Phe Gly
                1250            1255            1260


tac agc tgg aaa aat atc aga gag cgt tat gga acc cta aca ggc gag        3901
Tyr Ser Trp Lys Asn Ile Arg Glu Arg Tyr Gly Thr Leu Thr Gly Glu
            1265            1270            1275


ctg cat atg att gaa ctg gag aaa ggt cat agt ggt ttg ggc cta agt        3949
Leu His Met Ile Glu Leu Glu Lys Gly His Ser Gly Leu Gly Leu Ser
            1280            1285            1290
```

```
ctt gct ggg aac aaa gac cga tcc agg atg agt gtc ttc ata gtg ggg        3997
Leu Ala Gly Asn Lys Asp Arg Ser Arg Met Ser Val Phe Ile Val Gly
    1295            1300            1305


att gat cca aat gga gct gca gga aaa gat ggt cga ttg caa att gca        4045
Ile Asp Pro Asn Gly Ala Ala Gly Lys Asp Gly Arg Leu Gln Ile Ala
1310            1315             1320            1325


gat gag ctt cta gag atc aat ggt cag att tta tat gga aga agt cat        4093
Asp Glu Leu Leu Glu Ile Asn Gly Gln Ile Leu Tyr Gly Arg Ser His
            1330            1335            1340


cag aat gcc tca tca atc att aaa tgt gcc cct tct aaa gtg aaa ata        4141
Gln Asn Ala Ser Ser Ile Ile Lys Cys Ala Pro Ser Lys Val Lys Ile
            1345            1350            1355


att ttt atc aga aat aaa gat gca gtg aat cag atg gcc gta tgt cct        4189
Ile Phe Ile Arg Asn Lys Asp Ala Val Asn Gln Met Ala Val Cys Pro
            1360            1365            1370


gga aat gca gta gaa cct ttg cct tct aac tca gaa aat ctt caa aat        4237
Gly Asn Ala Val Glu Pro Leu Pro Ser Asn Ser Glu Asn Leu Gln Asn
    1375            1380            1385


aag gag aca gag cca act gtt act act tct gat gca gct gtg gac ctc        4285
Lys Glu Thr Glu Pro Thr Val Thr Thr Ser Asp Ala Ala Val Asp Leu
```

	1390			1395			1400			1405					

agt tca ttt aaa aat gtg caa cat ctg gag ctt ccc aag gat cag ggg   4333

Ser Ser Phe Lys Asn Val Gln His Leu Glu Leu Pro Lys Asp Gln Gly

			1410				1415				1420	

ggt ttg ggt att gct atc agc gaa gaa gat aca ctc agt gga gtc atc   4381

Gly Leu Gly Ile Ala Ile Ser Glu Glu Asp Thr Leu Ser Gly Val Ile

			1425				1430				1435	

ata aag agc tta aca gag cat ggg gta gca gcc acg gat gga cga ctc   4429

Ile Lys Ser Leu Thr Glu His Gly Val Ala Ala Thr Asp Gly Arg Leu

			1440				1445				1450	

aaa gtc gga gat cag ata ctg gct gta gat gat gaa att gtt gtt ggt   4477

Lys Val Gly Asp Gln Ile Leu Ala Val Asp Asp Glu Ile Val Val Gly

			1455				1460				1465	

tac cct att gaa aag ttt att agc ctt ctg aag aca gca aag atg aca   4525

Tyr Pro Ile Glu Lys Phe Ile Ser Leu Leu Lys Thr Ala Lys Met Thr

	1470				1475				1480				1485

gta aaa ctt acc atc cat gct gag aat cca gat tcc cag gct gtt cct   4573

Val Lys Leu Thr Ile His Ala Glu Asn Pro Asp Ser Gln Ala Val Pro

			1490				1495				1500	

tca gca gct ggt gca gcc agt gga gaa aaa aag aac agc tcc cag tct   4621

Ser Ala Ala Gly Ala Ala Ser Gly Glu Lys Lys Asn Ser Ser Gln Ser

     1505   1510   1515

ctg atg gtc cca cag tct ggc tcc cca gaa ccg gag tcc atc cga aat   4669

Leu Met Val Pro Gln Ser Gly Ser Pro Glu Pro Glu Ser Ile Arg Asn

     1520   1525   1530

aca agc aga tca tca aca cca gca att ttt gct tct gat cct gca acc   4717

Thr Ser Arg Ser Ser Thr Pro Ala Ile Phe Ala Ser Asp Pro Ala Thr

     1535   1540   1545

tgc ccc att atc cct ggc tgc gaa aca acc atc gag att tcc aaa ggg   4765

Cys Pro Ile Ile Pro Gly Cys Glu Thr Thr Ile Glu Ile Ser Lys Gly

1550   1555   1560   1565

cga aca ggg ctg ggc ctg agc atc gtt ggg ggt tca gac acg ctg ctg   4813

Arg Thr Gly Leu Gly Leu Ser Ile Val Gly Gly Ser Asp Thr Leu Leu

          1570   1575   1580

ggt gcc ttt att atc cat gaa gtt tat gaa gaa gga gca gca tgt aaa   4861

Gly Ala Phe Ile Ile His Glu Val Tyr Glu Glu Gly Ala Ala Cys Lys

          1585   1590   1595

gat gga aga ctc tgg gct gga gat cag atc tta gag gtg aat gga att   4909

Asp Gly Arg Leu Trp Ala Gly Asp Gln Ile Leu Glu Val Asn Gly Ile

          1600   1605   1610

gac ttg agg aag gcc aca cat gat gaa gca atc aat gtc ctg aga cag   4957
Asp Leu Arg Lys Ala Thr His Asp Glu Ala Ile Asn Val Leu Arg Gln
  1615   1620   1625

acg cca cag aga gtg cgc ctg aca ctc tac aga gat gag gcc cca tac   5005
Thr Pro Gln Arg Val Arg Leu Thr Leu Tyr Arg Asp Glu Ala Pro Tyr
  1630   1635   1640   1645

aaa gag gag gaa gtg tgt gac acc ctc act att gag ctg cag aag aag   5053
Lys Glu Glu Glu Val Cys Asp Thr Leu Thr Ile Glu Leu Gln Lys Lys
          1650   1655   1660

ccg gga aaa ggc cta gga tta agt att gtt ggt aaa aga aac gat act   5101
Pro Gly Lys Gly Leu Gly Leu Ser Ile Val Gly Lys Arg Asn Asp Thr
          1665   1670   1675

gga gta ttt gtg tca gac att gtc aaa gga gga att gca gat ccc gat   5149
Gly Val Phe Val Ser Asp Ile Val Lys Gly Gly Ile Ala Asp Pro Asp
          1680   1685   1690

gga aga ctg atc cag gga gac cag ata tta ttg gtg aat ggg gaa gac   5197
Gly Arg Leu Ile Gln Gly Asp Gln Ile Leu Leu Val Asn Gly Glu Asp
  1695   1700   1705

gtt cgt aat gcc tcc caa gaa gcg gtt gcc gct ttg cta aag tgt tcc   5245
Val Arg Asn Ala Ser Gln Glu Ala Val Ala Ala Leu Leu Lys Cys Ser
  1710   1715   1720   1725

```
cta ggc aca gta acc ttg gaa gtt gga aga atc aaa gct ggt cca ttc       5293
Leu Gly Thr Val Thr Leu Glu Val Gly Arg Ile Lys Ala Gly Pro Phe
              1730            1735                1740


cat tca gag agg agg cca tct caa acc agc cag gtg agt gaa ggc agc       5341
His Ser Glu Arg Arg Pro Ser Gln Thr Ser Gln Val Ser Glu Gly Ser
              1745            1750                1755


ctg tct tct ttc act ttt cca ctc tct gga tcc agt aca tct gag tca       5389
Leu Ser Ser Phe Thr Phe Pro Leu Ser Gly Ser Ser Thr Ser Glu Ser
              1760            1765                1770


ctg gaa agt agc tca aag aag aat gca ttg gca tct gaa ata cag gga       5437
Leu Glu Ser Ser Ser Lys Lys Asn Ala Leu Ala Ser Glu Ile Gln Gly
         1775            1780                1785


tta aga aca gtc gaa atg aaa aag ggc cct act gac tca ctg gga atc       5485
Leu Arg Thr Val Glu Met Lys Lys Gly Pro Thr Asp Ser Leu Gly Ile
1790            1795                1800                1805


agc atc gct gga gga gta ggc agc cca ctt ggt gat gtg cct ata ttt       5533
Ser Ile Ala Gly Gly Val Gly Ser Pro Leu Gly Asp Val Pro Ile Phe
              1810            1815                1820


att gca atg atg cac cca act gga gtt gca gca cag acc caa aaa ctc       5581
Ile Ala Met Met His Pro Thr Gly Val Ala Ala Gln Thr Gln Lys Leu
```

```
            1825                1830                1835

aga gtt ggg gat agg att gtc acc atc tgt ggc aca tcc act gag ggc      5629
Arg Val Gly Asp Arg Ile Val Thr Ile Cys Gly Thr Ser Thr Glu Gly
        1840                1845                1850


atg act cac acc caa gca gtt aac cta ctg aaa aat gca tct ggc tcc      5677
Met Thr His Thr Gln Ala Val Asn Leu Leu Lys Asn Ala Ser Gly Ser
        1855                1860                1865


att gaa atg cag gtg gtt gct gga gga gac gtg agt gtg gtc aca ggt      5725
Ile Glu Met Gln Val Val Ala Gly Gly Asp Val Ser Val Val Thr Gly
1870                1875                1880                1885


cat cat cag gag cct gca agt tcc agt ctt tct ttc act ggg ctg acg      5773
His His Gln Glu Pro Ala Ser Ser Ser Leu Ser Phe Thr Gly Leu Thr
                1890                1895                1900


tca acc agt ata ttt cag gat gat tta gga cct cct caa tgt aag tct      5821
Ser Thr Ser Ile Phe Gln Asp Asp Leu Gly Pro Pro Gln Cys Lys Ser
                1905                1910                1915


att aca cta gag cga gga cca gat ggc tta ggc ttc agt ata gtt gga      5869
Ile Thr Leu Glu Arg Gly Pro Asp Gly Leu Gly Phe Ser Ile Val Gly
        1920                1925                1930


gga tat ggc agc cct cat gga gac tta ccc att tat gtt aaa aca gtg      5917
```

Gly Tyr Gly Ser Pro His Gly Asp Leu Pro Ile Tyr Val Lys Thr Val
    1935   1940   1945

ttt gca aag gga gca gcc tct gaa gac gga cgt ctg aaa agg ggc gat   5965
Phe Ala Lys Gly Ala Ala Ser Glu Asp Gly Arg Leu Lys Arg Gly Asp
1950   1955   1960   1965

cag atc att gct gtc aat ggg cag agt cta gaa gga gtc acc cat gaa   6013
Gln Ile Ile Ala Val Asn Gly Gln Ser Leu Glu Gly Val Thr His Glu
    1970   1975   1980

gaa gct gtt gcc atc ctt aaa cgg aca aaa ggc act gtc act ttg atg   6061
Glu Ala Val Ala Ile Leu Lys Arg Thr Lys Gly Thr Val Thr Leu Met
    1985   1990   1995

gtt ctc tct tgaattggct gccagaattg aaccaaccca acccctagct   6110
Val Leu Ser
    2000

cacctcctac tgtaaagaga atgcactggt cctgacaatt tttatgctgt gttcagccgg   6170

gtcttcaaaa ctgtaggggg gaaataacac ttaagtttct ttttctcatc tagaaatgct   6230

ttccttactg acaacctaac atcatttttc ttttcttctt gcattttgtg aacttaaaga   6290

gaaggaatat ttgtgtaggt gaatctcgtt tttatttgtg gagatatcta atgttttgta   6350

gtcacatggg caagaattat tacatgctaa gctggttagt ataaagaaag ataattctaa   6410

agctaaccaa agaaaatggc ttcagtaagt taggatgaaa aatgaaaata taaaataaag   6470

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accccaaact   6540

<210> 86

<211> 6750

<212> DNA

<213> Homo sapience

<220>

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<222> (71)...(6280)

<400> 86

ttctcagtca cgcagttcca ttttaattgc tgttaatcat ttcagagaag aacactgaac   60

tttgaaaaaa atg ttg gaa gcc att gac aaa aat cgg gcc ctg cat gca   109
          Met Leu Glu Ala Ile Asp Lys Asn Arg Ala Leu His Ala
           1   5   10

gca gag cgc ttg caa acc aag ctg cga gaa cgt ggg gat gta gca aat   157
Ala Glu Arg Leu Gln Thr Lys Leu Arg Glu Arg Gly Asp Val Ala Asn
     15   20   25

gaa gac aaa ctg agc ctt ctg aag tca gtc ctg cag agc cct ctc ttc   205
Glu Asp Lys Leu Ser Leu Leu Lys Ser Val Leu Gln Ser Pro Leu Phe
 30   35   40   45

agt cag att ctg agc ctt cag act tct gta cag cag ctg aaa gac cag   253
Ser Gln Ile Leu Ser Leu Gln Thr Ser Val Gln Gln Leu Lys Asp Gln
                50   55   60

gta aat att gca act tca gca act tca aat att gaa tat gcc cac gtt   301
Val Asn Ile Ala Thr Ser Ala Thr Ser Asn Ile Glu Tyr Ala His Val
                65   70   75

cct cat ctc agc cca gct gtg att cct act ctg caa aat gaa tcg ttt   349
Pro His Leu Ser Pro Ala Val Ile Pro Thr Leu Gln Asn Glu Ser Phe
                80   85   90

tta tta tcc cca aac aat ggg aat ctg gaa gca ctt aca gga cct ggt   397
Leu Leu Ser Pro Asn Asn Gly Asn Leu Glu Ala Leu Thr Gly Pro Gly
 95   100   105

att cca cac att aat ggg aaa cct gct tgt gat gaa ttt gat cag ctt   445
Ile Pro His Ile Asn Gly Lys Pro Ala Cys Asp Glu Phe Asp Gln Leu
110   115   120   125

atc aaa aat atg gcc cag ggt cgc cat gta gaa gtt ttt gag ctc ctc   493
Ile Lys Asn Met Ala Gln Gly Arg His Val Glu Val Phe Glu Leu Leu

```
                    130                  135                  140

aaa cct cca tct gga ggc ctt ggg ttt agt gtt gtg gga cta aga agt        541
Lys Pro Pro Ser Gly Gly Leu Gly Phe Ser Val Val Gly Leu Arg Ser
            145                  150                  155


gaa aac aga gga gag ctg gga ata ttt gtt caa gag ata caa gag ggc        589
Glu Asn Arg Gly Glu Leu Gly Ile Phe Val Gln Glu Ile Gln Glu Gly
            160                  165                  170


agt gtg gcc cat aga gat gga aga ttg aaa gaa act gat caa att ctt        637
Ser Val Ala His Arg Asp Gly Arg Leu Lys Glu Thr Asp Gln Ile Leu
            175                  180                  185


gct atc aat gga cag gct ctt gat cag aca att aca cat cag cag gct        685
Ala Ile Asn Gly Gln Ala Leu Asp Gln Thr Ile Thr His Gln Gln Ala
190                  195                  200                  205


atc agc atc ctg cag aaa gcc aaa gat act gtc cag cta gtt att gcc        733
Ile Ser Ile Leu Gln Lys Ala Lys Asp Thr Val Gln Leu Val Ile Ala
                        210                  215                  220


aga ggc tca ttg cct cag ctt gtc agc ccc ata gtt tcc cgt tct cca        781
Arg Gly Ser Leu Pro Gln Leu Val Ser Pro Ile Val Ser Arg Ser Pro
            225                  230                  235


tct gca gcc agc aca att tca gct cac tct aat ccg gtt cac tgg caa        829
```

Ser Ala Ala Ser Thr Ile Ser Ala His Ser Asn Pro Val His Trp Gln

     240   245   250

```
cac atg gaa acg att gaa ttg gtg aat gat gga tct ggt ttg gga ttt        877
His Met Glu Thr Ile Glu Leu Val Asn Asp Gly Ser Gly Leu Gly Phe
    255             260             265


ggc atc ata gga gga aaa gca act ggt gtg ata gta aaa acc att ctg        925
Gly Ile Ile Gly Gly Lys Ala Thr Gly Val Ile Val Lys Thr Ile Leu
270             275             280             285


cct gga gga gta gct gat cag cat ggg cgt tta tgc agt gga gac cac        973
Pro Gly Gly Val Ala Asp Gln His Gly Arg Leu Cys Ser Gly Asp His
            290             295             300


att cta aag att ggt gac aca gat cta gca gga atg agc agt gag caa       1021
Ile Leu Lys Ile Gly Asp Thr Asp Leu Ala Gly Met Ser Ser Glu Gln
            305             310             315


gta gca caa gtc ctt agg caa tgt gga aat aga gtt aag ttg atg att       1069
Val Ala Gln Val Leu Arg Gln Cys Gly Asn Arg Val Lys Leu Met Ile
    320             325             330


gca aga agt gcc ata gaa gaa cgt aca gca ccc act gct ttg ggc atc       1117
Ala Arg Ser Ala Ile Glu Glu Arg Thr Ala Pro Thr Ala Leu Gly Ile
    335             340             345
```

acc ctc tcc tca tcc cca act tca acg cca gag ttg cgg gtt gat gct   1165
Thr Leu Ser Ser Ser Pro Thr Ser Thr Pro Glu Leu Arg Val Asp Ala
350   355   360   365

tct act cag aaa ggt gaa gaa agt gag aca ttt gat gta gaa ctc act   1213
Ser Thr Gln Lys Gly Glu Glu Ser Glu Thr Phe Asp Val Glu Leu Thr
                    370   375   380

aaa aat gtc caa gga tta gga att acc att gct ggc tac att gga gat   1261
Lys Asn Val Gln Gly Leu Gly Ile Thr Ile Ala Gly Tyr Ile Gly Asp
                385   390   395

aaa aaa ttg gaa cct tca gga atc ttt gta aag agc att aca aaa agc   1309
Lys Lys Leu Glu Pro Ser Gly Ile Phe Val Lys Ser Ile Thr Lys Ser
                400   405   410

agt gcc gtt gag cat gat gga aga atc caa att gga gac caa att ata   1357
Ser Ala Val Glu His Asp Gly Arg Ile Gln Ile Gly Asp Gln Ile Ile
            415   420   425

gca gta gat ggc aca aac ctt cag ggt ttt act aat cag caa gca gta   1405
Ala Val Asp Gly Thr Asn Leu Gln Gly Phe Thr Asn Gln Gln Ala Val
430   435   440   445

gag gta ttg cga cat aca gga caa act gtg ctc ctg aca cta atg agg   1453
Glu Val Leu Arg His Thr Gly Gln Thr Val Leu Leu Thr Leu Met Arg
                450   455   460

```
aga gga atg aag cag gaa gcc gag ctc atg tca agg gaa gac gtc aca        1501
Arg Gly Met Lys Gln Glu Ala Glu Leu Met Ser Arg Glu Asp Val Thr
            465                 470                 475


aaa gat gca gat ttg tct cct gtt aat gcc agc ata atc aaa gaa aat        1549
Lys Asp Ala Asp Leu Ser Pro Val Asn Ala Ser Ile Ile Lys Glu Asn
            480                 485                 490


tat gaa aaa gat gaa gat ttt tta tct tcg acg aga aac acc aac ata        1597
Tyr Glu Lys Asp Glu Asp Phe Leu Ser Ser Thr Arg Asn Thr Asn Ile
            495                 500                 505


tta cca act gaa gaa gaa ggg tat cca tta ctg tca gct gag ata gaa        1645
Leu Pro Thr Glu Glu Glu Gly Tyr Pro Leu Leu Ser Ala Glu Ile Glu
510                 515                 520                 525


gaa ata gaa gat gca caa aaa caa gaa gct gct ctg ctg aca aaa tgg        1693
Glu Ile Glu Asp Ala Gln Lys Gln Glu Ala Ala Leu Leu Thr Lys Trp
                    530                 535                 540


caa agg att atg gga att aac tat gaa ata gtg gtg gcc cat gtg agc        1741
Gln Arg Ile Met Gly Ile Asn Tyr Glu Ile Val Val Ala His Val Ser
            545                 550                 555


aag ttt agt gag aac agt gga ttg ggg ata agc ctg gaa gcg aca gtg        1789
Lys Phe Ser Glu Asn Ser Gly Leu Gly Ile Ser Leu Glu Ala Thr Val
```

                    560   565   570

gga cat cat ttt atc cga tct gtt cta cca gag ggt cct gtt gga cac   1837
Gly His His Phe Ile Arg Ser Val Leu Pro Glu Gly Pro Val Gly His
        575   580   585

agc ggg aag ctc ttc agt gga gac gag cta ttg gaa gta aat ggc ata   1885
Ser Gly Lys Leu Phe Ser Gly Asp Glu Leu Leu Glu Val Asn Gly Ile
590   595   600   605

act tta ctt ggg gaa aat cac caa gat gtg gtg aat atc tta aaa gaa   1933
Thr Leu Leu Gly Glu Asn His Gln Asp Val Val Asn Ile Leu Lys Glu
                    610   615   620

ctg cct ata gaa gtg aca atg gtg tgc tgt cgt cga act gtg cca ccc   1981
Leu Pro Ile Glu Val Thr Met Val Cys Cys Arg Arg Thr Val Pro Pro
                    625   630   635

acc acc caa tca gaa ttg gat agc ctg gac tta tgt gat att gag cta   2029
Thr Thr Gln Ser Glu Leu Asp Ser Leu Asp Leu Cys Asp Ile Glu Leu
                    640   645   650

aca gaa aag cct cac gta gat cta ggt gag ttc atc ggg tca tca gag   2077
Thr Glu Lys Pro His Val Asp Leu Gly Glu Phe Ile Gly Ser Ser Glu
        655   660   665

cca gag gat cca gtg ctg gcg atg act gat gcg ggt cag agt aca gaa   2125

Pro Glu Asp Pro Val Leu Ala Met Thr Asp Ala Gly Gln Ser Thr Glu
670   675   680   685

gag gtt caa gca cct ttg gcc atg tgg gag gct ggc att cag cac ata   2173
Glu Val Gln Ala Pro Leu Ala Met Trp Glu Ala Gly Ile Gln His Ile
                690   695   700

atg ctg gag aaa ggg agc aaa gga ctt ggt ttt agc att tta gat tat   2221
Met Leu Glu Lys Gly Ser Lys Gly Leu Gly Phe Ser Ile Leu Asp Tyr
                705   710   715

cag gat cca att gat cca gca agc act gtg att ata att cgt tct ttg   2269
Gln Asp Pro Ile Asp Pro Ala Ser Thr Val Ile Ile Ile Arg Ser Leu
            720   725   730

gtg cct ggc ggc att gct gaa aag gat gga cga ctt ctt cct ggt gac   2317
Val Pro Gly Gly Ile Ala Glu Lys Asp Gly Arg Leu Leu Pro Gly Asp
        735   740   745

cga ctc atg ttt gta aac gat gtt aac ttg gaa aac agc agt ctt gag   2365
Arg Leu Met Phe Val Asn Asp Val Asn Leu Glu Asn Ser Ser Leu Glu
750   755   760   765

gaa gct gta gaa gca ctg aag gga gca ccg tca ggg act gtg aga ata   2413
Glu Ala Val Glu Ala Leu Lys Gly Ala Pro Ser Gly Thr Val Arg Ile
            770   775   780

```
gga gtt gct aag cct tta ccc ctt tca cca gaa gaa ggt tat gtt tct        2461
Gly Val Ala Lys Pro Leu Pro Leu Ser Pro Glu Glu Gly Tyr Val Ser
            785               790               795


gct aag gag gat tcc ttt ctc tac cca cca cac tcc tgt gag gaa gca        2509
Ala Lys Glu Asp Ser Phe Leu Tyr Pro Pro His Ser Cys Glu Glu Ala
            800               805               810


ggg ctg gct gac aaa ccc ctc ttc agg gct gac ttg gct ctg gtg ggc        2557
Gly Leu Ala Asp Lys Pro Leu Phe Arg Ala Asp Leu Ala Leu Val Gly
         815               820               825


aca aat gat gct gac tta gta gat gaa tcc aca ttt gag tct cca tac        2605
Thr Asn Asp Ala Asp Leu Val Asp Glu Ser Thr Phe Glu Ser Pro Tyr
830               835               840               845


tct cct gaa aat gac agc atc tac tct act caa gcc tct att tta tct        2653
Ser Pro Glu Asn Asp Ser Ile Tyr Ser Thr Gln Ala Ser Ile Leu Ser
                850               855               860


ctt cat ggc agt tct tgt ggt gat ggc ctg aac tat ggt tct tcc ctt        2701
Leu His Gly Ser Ser Cys Gly Asp Gly Leu Asn Tyr Gly Ser Ser Leu
            865               870               875


cca tca tct cct cct aag gat gtt att gaa aat tct tgt gat cca gta        2749
Pro Ser Ser Pro Pro Lys Asp Val Ile Glu Asn Ser Cys Asp Pro Val
            880               885               890
```

```
ctt gat ctg cat atg tct ctg gag gaa cta tat acc cag aat ctc ctg       2797
Leu Asp Leu His Met Ser Leu Glu Glu Leu Tyr Thr Gln Asn Leu Leu
        895                 900                 905


gaa aga cag gat gag aat aca cct tcg gtg gac ata agt atg ggg cct       2845
Glu Arg Gln Asp Glu Asn Thr Pro Ser Val Asp Ile Ser Met Gly Pro
910                 915                 920                 925


gct tct ggc ttt act ata aat gac tac aca cct gca aat gct att gaa       2893
Ala Ser Gly Phe Thr Ile Asn Asp Tyr Thr Pro Ala Asn Ala Ile Glu
                930                 935                 940


caa caa tat gaa tgt gaa aac aca ata gtg tgg act gaa tct cat tta       2941
Gln Gln Tyr Glu Cys Glu Asn Thr Ile Val Trp Thr Glu Ser His Leu
                945                 950                 955


cca agt gaa gtt ata tca agt gca gaa ctt cct tct gtg cta ccc gat       2989
Pro Ser Glu Val Ile Ser Ser Ala Glu Leu Pro Ser Val Leu Pro Asp
        960                 965                 970


tca gct gga aag ggc tct gag tac ctg ctt gaa cag agc tcc ctg gcc       3037
Ser Ala Gly Lys Gly Ser Glu Tyr Leu Leu Glu Gln Ser Ser Leu Ala
        975                 980                 985


tgt aat gct gag tgt gtc atg ctt caa aat gta tct aaa gaa tct ttt       3085
Cys Asn Ala Glu Cys Val Met Leu Gln Asn Val Ser Lys Glu Ser Phe
```

990   995   1000   1005

```
gaa agg act att aat ata gca aaa ggc aat tct agc cta gga atg aca     3133
Glu Arg Thr Ile Asn Ile Ala Lys Gly Asn Ser Ser Leu Gly Met Thr
                1010                1015                1020


gtt agt gct aat aaa gat ggc ttg ggg atg atc gtt cga agc att att     3181
Val Ser Ala Asn Lys Asp Gly Leu Gly Met Ile Val Arg Ser Ile Ile
                1025                1030                1035


cat gga ggt gcc att agt cga gat ggc cgg att gcc att ggg gac tgc     3229
His Gly Gly Ala Ile Ser Arg Asp Gly Arg Ile Ala Ile Gly Asp Cys
                1040                1045                1050


atc ttg tcc att aat gaa gag tct acc atc agt gta acc aat gcc cag     3277
Ile Leu Ser Ile Asn Glu Glu Ser Thr Ile Ser Val Thr Asn Ala Gln
                1055                1060                1065


gca cga gct atg ttg aga aga cat tct ctc att ggc cct gac ata aaa     3325
Ala Arg Ala Met Leu Arg Arg His Ser Leu Ile Gly Pro Asp Ile Lys
1070                1075                1080                1085


att act tat gtg cct gca gaa cat ttg gaa gag ttc aaa ata agc ttg     3373
Ile Thr Tyr Val Pro Ala Glu His Leu Glu Glu Phe Lys Ile Ser Leu
                1090                1095                1100


gga caa caa tct gga aga gta atg gca ctg gat att ttt tct tca tac     3421
```

Gly Gln Gln Ser Gly Arg Val Met Ala Leu Asp Ile Phe Ser Ser Tyr
        1105   1110   1115

act ggc aga gac att cca gaa tta cca gag cga gaa gag gga gag ggt   3469
Thr Gly Arg Asp Ile Pro Glu Leu Pro Glu Arg Glu Glu Gly Glu Gly
        1120   1125   1130

gaa gaa agc gaa ctt caa aac aca gca tat agc aat tgg aat cag ccc   3517
Glu Glu Ser Glu Leu Gln Asn Thr Ala Tyr Ser Asn Trp Asn Gln Pro
        1135   1140   1145

agg cgg gtg gaa ctt tgg aga gaa cca agc aaa tcc tta ggc atc agc   3565
Arg Arg Val Glu Leu Trp Arg Glu Pro Ser Lys Ser Leu Gly Ile Ser
1150   1155   1160   1165

att gtt ggt gga cga ggg atg ggg agt cgg cta agc aat gga gaa gtg   3613
Ile Val Gly Gly Arg Gly Met Gly Ser Arg Leu Ser Asn Gly Glu Val
          1170   1175   1180

atg agg ggc att ttc atc aaa cat gtt ctg gaa gat agg cca gct ggc   3661
Met Arg Gly Ile Phe Ile Lys His Val Leu Glu Asp Arg Pro Ala Gly
        1185   1190   1195

aaa aat gga acc ttg aag cct gga gat aga atc gta gag gtg gat gga   3709
Lys Asn Gly Thr Leu Lys Pro Gly Asp Arg Ile Val Glu Val Asp Gly
        1200   1205   1210

```
atg gac ctc aga gat gca agc cat gaa caa gct gtg gaa gcc att cgg     3757
Met Asp Leu Arg Asp Ala Ser His Glu Gln Ala Val Glu Ala Ile Arg
    1215             1220             1225


aaa gca ggc aac cct gta gtc ttt atg gta cag agc att ata aac aga     3805
Lys Ala Gly Asn Pro Val Val Phe Met Val Gln Ser Ile Ile Asn Arg
1230             1235             1240             1245


cca agg aaa tcc cct ttg cct tcc ttg ctg cac aac ctt tac cct aag     3853
Pro Arg Lys Ser Pro Leu Pro Ser Leu Leu His Asn Leu Tyr Pro Lys
                 1250             1255             1260


tac aac ttc agc agc act aac cca ttt gct gac tct cta caa atc aac     3901
Tyr Asn Phe Ser Ser Thr Asn Pro Phe Ala Asp Ser Leu Gln Ile Asn
             1265             1270             1275


gcc gac aag gca ccc agt cag tca gag tca gag cca gag aag gct cca     3949
Ala Asp Lys Ala Pro Ser Gln Ser Glu Ser Glu Pro Glu Lys Ala Pro
         1280             1285             1290


ttg tgc agt gtg ccc cca ccc cct cct tca gcc ttt gcc gaa atg ggt     3997
Leu Cys Ser Val Pro Pro Pro Pro Pro Ser Ala Phe Ala Glu Met Gly
    1295             1300             1305


agt gat cac aca cag tca tct gca agc aaa atc tca caa gat gtg gac     4045
Ser Asp His Thr Gln Ser Ser Ala Ser Lys Ile Ser Gln Asp Val Asp
1310             1315             1320             1325
```

```
aaa gag gat gag ttt ggt tac agc tgg aaa aat atc aga gag cgt tat        4093
Lys Glu Asp Glu Phe Gly Tyr Ser Trp Lys Asn Ile Arg Glu Arg Tyr
            1330              1335              1340


gga acc cta aca ggc gag ctg cat atg att gaa ctg gag aaa ggt cat        4141
Gly Thr Leu Thr Gly Glu Leu His Met Ile Glu Leu Glu Lys Gly His
            1345              1350              1355


agt ggt ttg ggc cta agt ctt gct ggg aac aaa gac cga tcc agg atg        4189
Ser Gly Leu Gly Leu Ser Leu Ala Gly Asn Lys Asp Arg Ser Arg Met
            1360              1365              1370


agt gtc ttc ata gtg ggg att gat cca aat gga gct gca gga aaa gat        4237
Ser Val Phe Ile Val Gly Ile Asp Pro Asn Gly Ala Ala Gly Lys Asp
            1375              1380              1385


ggt cga ttg caa att gca gat gag ctt cta gag atc aat ggt cag att        4285
Gly Arg Leu Gln Ile Ala Asp Glu Leu Leu Glu Ile Asn Gly Gln Ile
      1390              1395              1400              1405


tta tat gga aga agt cat cag aat gcc tca tca atc att aaa tgt gcc        4333
Leu Tyr Gly Arg Ser His Gln Asn Ala Ser Ser Ile Ile Lys Cys Ala
            1410              1415              1420


cct tct aaa gtg aaa ata att ttt atc aga aat aaa gat gca gtg aat        4381
Pro Ser Lys Val Lys Ile Ile Phe Ile Arg Asn Lys Asp Ala Val Asn
```

1425   1430   1435

```
cag atg gcc gta tgt cct gga aat gca gta gaa cct ttg cct tct aac    4429
Gln Met Ala Val Cys Pro Gly Asn Ala Val Glu Pro Leu Pro Ser Asn
    1440            1445            1450
```

```
tca gaa aat ctt caa aat aag gag aca gag cca act gtt act act tct    4477
Ser Glu Asn Leu Gln Asn Lys Glu Thr Glu Pro Thr Val Thr Thr Ser
    1455            1460            1465
```

```
gat gca gct gtg gac ctc agt tca ttt aaa aat gtg caa cat ctg gag    4525
Asp Ala Ala Val Asp Leu Ser Ser Phe Lys Asn Val Gln His Leu Glu
1470            1475            1480            1485
```

```
ctt ccc aag gat cag ggg ggt ttg ggt att gct atc agc gaa gaa gat    4573
Leu Pro Lys Asp Gln Gly Gly Leu Gly Ile Ala Ile Ser Glu Glu Asp
        1490            1495            1500
```

```
aca ctc agt gga gtc atc ata aag agc tta aca gag cat ggg gta gca    4621
Thr Leu Ser Gly Val Ile Ile Lys Ser Leu Thr Glu His Gly Val Ala
    1505            1510            1515
```

```
gcc acg gat gga cga ctc aaa gtc gga gat cag ata ctg gct gta gat    4669
Ala Thr Asp Gly Arg Leu Lys Val Gly Asp Gln Ile Leu Ala Val Asp
    1520            1525            1530
```

```
gat gaa att gtt gtt ggt tac cct att gaa aag ttt att agc ctt ctg    4717
```

Asp Glu Ile Val Val Gly Tyr Pro Ile Glu Lys Phe Ile Ser Leu Leu
     1535   1540   1545

aag aca gca aag atg aca gta aaa ctt acc atc cat gct gag aat cca   4765
Lys Thr Ala Lys Met Thr Val Lys Leu Thr Ile His Ala Glu Asn Pro
1550   1555   1560   1565

gat tcc cag gct gtt cct tca gca gct ggt gca gcc agt gga gaa aaa   4813
Asp Ser Gln Ala Val Pro Ser Ala Ala Gly Ala Ala Ser Gly Glu Lys
          1570   1575   1580

aag aac agc tcc cag tct ctg atg gtc cca cag tct ggc tcc cca gaa   4861
Lys Asn Ser Ser Gln Ser Leu Met Val Pro Gln Ser Gly Ser Pro Glu
          1585   1590   1595

ccg gag tcc atc cga aat aca agc aga tca tca aca cca gca att ttt   4909
Pro Glu Ser Ile Arg Asn Thr Ser Arg Ser Ser Thr Pro Ala Ile Phe
     1600   1605   1610

gct tct gat cct gca acc tgc ccc att atc cct ggc tgc gaa aca acc   4957
Ala Ser Asp Pro Ala Thr Cys Pro Ile Ile Pro Gly Cys Glu Thr Thr
     1615   1620   1625

atc gag att tcc aaa ggg cga aca ggg ctg ggc ctg agc atc gtt ggg   5005
Ile Glu Ile Ser Lys Gly Arg Thr Gly Leu Gly Leu Ser Ile Val Gly
1630   1635   1640   1645

ggt tca gac acg ctg ctg ggt gcc ttt att atc cat gaa gtt tat gaa   5053
Gly Ser Asp Thr Leu Leu Gly Ala Phe Ile Ile His Glu Val Tyr Glu
            1650   1655   1660

gaa gga gca gca tgt aaa gat gga aga ctc tgg gct gga gat cag atc   5101
Glu Gly Ala Ala Cys Lys Asp Gly Arg Leu Trp Ala Gly Asp Gln Ile
            1665   1670   1675

tta gag gtg aat gga att gac ttg agg aag gcc aca cat gat gaa gca   5149
Leu Glu Val Asn Gly Ile Asp Leu Arg Lys Ala Thr His Asp Glu Ala
            1680   1685   1690

atc aat gtc ctg aga cag acg cca cag aga gtg cgc ctg aca ctc tac   5197
Ile Asn Val Leu Arg Gln Thr Pro Gln Arg Val Arg Leu Thr Leu Tyr
        1695   1700   1705

aga gat gag gcc cca tac aaa gag gag gaa gtg tgt gac acc ctc act   5245
Arg Asp Glu Ala Pro Tyr Lys Glu Glu Glu Val Cys Asp Thr Leu Thr
1710   1715   1720   1725

att gag ctg cag aag aag ccg gga aaa ggc cta gga tta agt att gtt   5293
Ile Glu Leu Gln Lys Lys Pro Gly Lys Gly Leu Gly Leu Ser Ile Val
            1730   1735   1740

ggt aaa aga aac gat act gga gta ttt gtg tca gac att gtc aaa gga   5341
Gly Lys Arg Asn Asp Thr Gly Val Phe Val Ser Asp Ile Val Lys Gly
            1745   1750   1755

gga att gca gat ccc gat gga aga ctg atc cag gga gac cag ata tta   5389
Gly Ile Ala Asp Pro Asp Gly Arg Leu Ile Gln Gly Asp Gln Ile Leu
     1760   1765   1770

ttg gtg aat ggg gaa gac gtt cgt aat gcc tcc caa gaa gcg gtt gcc   5437
Leu Val Asn Gly Glu Asp Val Arg Asn Ala Ser Gln Glu Ala Val Ala
     1775   1780   1785

gct ttg cta aag tgt tcc cta ggc aca gta acc ttg gaa gtt gga aga   5485
Ala Leu Leu Lys Cys Ser Leu Gly Thr Val Thr Leu Glu Val Gly Arg
1790   1795   1800   1805

atc aaa gct ggt cca ttc cat tca gag agg agg cca tct caa acc agc   5533
Ile Lys Ala Gly Pro Phe His Ser Glu Arg Arg Pro Ser Gln Thr Ser
            1810   1815   1820

cag gtg agt gaa ggc agc ctg tct tct ttc act ttt cca ctc tct gga   5581
Gln Val Ser Glu Gly Ser Leu Ser Ser Phe Thr Phe Pro Leu Ser Gly
            1825   1830   1835

tcc agt aca tct gag tca ctg gaa agt agc tca aag aag aat gca ttg   5629
Ser Ser Thr Ser Glu Ser Leu Glu Ser Ser Ser Lys Lys Asn Ala Leu
     1840   1845   1850

gca tct gaa ata cag gga tta aga aca gtc gaa atg aaa aag ggc cct   5677
Ala Ser Glu Ile Gln Gly Leu Arg Thr Val Glu Met Lys Lys Gly Pro

1855   1860   1865

```
act gac tca ctg gga atc agc atc gct gga gga gta ggc agc cca ctt       5725
Thr Asp Ser Leu Gly Ile Ser Ile Ala Gly Gly Val Gly Ser Pro Leu
1870            1875            1880            1885
```

```
ggt gat gtg cct ata ttt att gca atg atg cac cca act gga gtt gca       5773
Gly Asp Val Pro Ile Phe Ile Ala Met Met His Pro Thr Gly Val Ala
                1890            1895            1900
```

```
gca cag acc caa aaa ctc aga gtt ggg gat agg att gtc acc atc tgt       5821
Ala Gln Thr Gln Lys Leu Arg Val Gly Asp Arg Ile Val Thr Ile Cys
                1905            1910            1915
```

```
ggc aca tcc act gag ggc atg act cac acc caa gca gtt aac cta ctg       5869
Gly Thr Ser Thr Glu Gly Met Thr His Thr Gln Ala Val Asn Leu Leu
        1920            1925            1930
```

```
aaa aat gca tct ggc tcc att gaa atg cag gtg gtt gct gga gga gac       5917
Lys Asn Ala Ser Gly Ser Ile Glu Met Gln Val Val Ala Gly Gly Asp
    1935            1940            1945
```

```
gtg agt gtg gtc aca ggt cat cat cag gag cct gca agt tcc agt ctt       5965
Val Ser Val Val Thr Gly His His Gln Glu Pro Ala Ser Ser Ser Leu
    1950            1955            1960            1965
```

```
tct ttc act ggg ctg acg tca acc agt ata ttt cag gat gat tta gga       6013
```

Ser Phe Thr Gly Leu Thr Ser Thr Ser Ile Phe Gln Asp Asp Leu Gly
            1970   1975   1980

cct cct caa tgt aag tct att aca cta gag cga gga cca gat ggc tta   6061
Pro Pro Gln Cys Lys Ser Ile Thr Leu Glu Arg Gly Pro Asp Gly Leu
            1985   1990   1995

ggc ttc agt ata gtt gga gga tat ggc agc cct cat gga gac tta ccc   6109
Gly Phe Ser Ile Val Gly Gly Tyr Gly Ser Pro His Gly Asp Leu Pro
            2000   2005   2010

att tat gtt aaa aca gtg ttt gca aag gga gca gcc tct gaa gac gga   6157
Ile Tyr Val Lys Thr Val Phe Ala Lys Gly Ala Ala Ser Glu Asp Gly
            2015   2020   2025

cgt ctg aaa agg ggc gat cag atc att gct gtc aat ggg cag agt cta   6205
Arg Leu Lys Arg Gly Asp Gln Ile Ile Ala Val Asn Gly Gln Ser Leu
2030   2035   2040   2045

gaa gga gtc acc cat gaa gaa gct gtt gcc atc ctt aaa cgg aca aaa   6253
Glu Gly Val Thr His Glu Glu Ala Val Ala Ile Leu Lys Arg Thr Lys
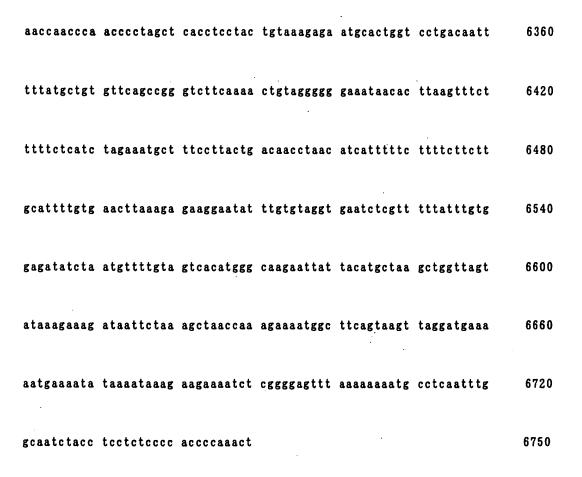   2050   2055   2060

ggc act gtc act ttg atg gtt ctc tct tgaattggct gccagaattg   6300
Gly Thr Val Thr Leu Met Val Leu Ser
            2065   2070

```
aaccaaccca acccctagct cacctcctac tgtaaagaga atgcactggt cctgacaatt      6360

tttatgctgt gttcagccgg gtcttcaaaa ctgtaggggg gaaataacac ttaagtttct      6420

ttttctcatc tagaaatgct ttccttactg acaacctaac atcatttttc ttttcttctt      6480

gcattttgtg aacttaaaga gaaggaatat ttgtgtaggt gaatctcgtt tttatttgtg      6540

gagatatcta atgttttgta gtcacatggg caagaattat tacatgctaa gctggttagt      6600

ataaagaaag ataattctaa agctaaccaa agaaaatggc ttcagtaagt taggatgaaa      6660

aatgaaaata taaaataaag aagaaaatct cggggagttt aaaaaaaatg cctcaatttg      6720

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<210> 87

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<400> 87

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ttctcagtca cgcagttcca ttttaattgc tgttaatcat ttcagagaag aacactgaac        60
```

```
tttgaaaaaa atg ttg gaa gcc att gac aaa aat cgg gcc ctg cat gca          109
           Met Leu Glu Ala Ile Asp Lys Asn Arg Ala Leu His Ala
            1               5                   10


gca gag cgc ttg caa acc aag ctg cga gaa cgt ggg gat gta gca aat          157
Ala Glu Arg Leu Gln Thr Lys Leu Arg Glu Arg Gly Asp Val Ala Asn
 15                  20                  25


gaa gac aaa ctg agc ctt ctg aag tca gtc ctg cag agc cct ctc ttc          205
Glu Asp Lys Leu Ser Leu Leu Lys Ser Val Leu Gln Ser Pro Leu Phe
 30                  35                  40                  45


agt cag att ctg agc ctt cag act tct gta cag cag ctg aaa gac cag          253
Ser Gln Ile Leu Ser Leu Gln Thr Ser Val Gln Gln Leu Lys Asp Gln
                 50                  55                  60


gta aat att gca act tca gca act tca aat att gaa tat gcc cac gtt          301
Val Asn Ile Ala Thr Ser Ala Thr Ser Asn Ile Glu Tyr Ala His Val
                 65                  70                  75


cct cat ctc agc cca gct gtg att cct act ctg caa aat gaa tcg ttt          349
Pro His Leu Ser Pro Ala Val Ile Pro Thr Leu Gln Asn Glu Ser Phe
         80                  85                  90


tta tta tcc cca aac aat ggg aat ctg gaa gca ctt aca gga cct ggt          397
Leu Leu Ser Pro Asn Asn Gly Asn Leu Glu Ala Leu Thr Gly Pro Gly
```

```
                95                      100                     105

      att cca cac att aat ggg aaa cct gct tgt gat gaa ttt gat cag ctt      445
      Ile Pro His Ile Asn Gly Lys Pro Ala Cys Asp Glu Phe Asp Gln Leu
      110                     115                     120                125


      atc aaa aat atg gcc cag ggt cgc cat gta gaa gtt ttt gag ctc ctc      493
      Ile Lys Asn Met Ala Gln Gly Arg His Val Glu Val Phe Glu Leu Leu
                          130                     135                 140


      aaa cct cca tct gga ggc ctt ggg ttt agt gtt gtg gga cta aga agt      541
      Lys Pro Pro Ser Gly Gly Leu Gly Phe Ser Val Val Gly Leu Arg Ser
                      145                     150                 155


      gaa aac aga gga gag ctg gga ata ttt gtt caa gag ata caa gag ggc      589
      Glu Asn Arg Gly Glu Leu Gly Ile Phe Val Gln Glu Ile Gln Glu Gly
                  160                     165                 170


      agt gtg gcc cat aga gat gga aga ttg aaa gaa act gat caa att ctt      637
      Ser Val Ala His Arg Asp Gly Arg Leu Lys Glu Thr Asp Gln Ile Leu
      175                     180                 185


      gct atc aat gga cag gct ctt gat cag aca att aca cat cag cag gct      685
      Ala Ile Asn Gly Gln Ala Leu Asp Gln Thr Ile Thr His Gln Gln Ala
      190                     195                     200                205


      atc agc atc ctg cag aaa gcc aaa gat act gtc cag cta gtt att gcc      733
```

Ile Ser Ile Leu Gln Lys Ala Lys Asp Thr Val Gln Leu Val Ile Ala
                210   215   220

aga ggc tca ttg cct cag ctt gtc agc ccc ata gtt tcc cgt tct cca   781
Arg Gly Ser Leu Pro Gln Leu Val Ser Pro Ile Val Ser Arg Ser Pro
                225   230   235

tct gca gcc agc aca att tca gct cac tct aat ccg gtt cac tgg caa   829
Ser Ala Ala Ser Thr Ile Ser Ala His Ser Asn Pro Val His Trp Gln
                240   245   250

cac atg gaa acg att gaa ttg gtg aat gat gga tct ggt ttg gga ttt   877
His Met Glu Thr Ile Glu Leu Val Asn Asp Gly Ser Gly Leu Gly Phe
                255   260   265

ggc atc ata gga gga aaa gca act ggt gtg ata gta aaa acc att ctg   925
Gly Ile Ile Gly Gly Lys Ala Thr Gly Val Ile Val Lys Thr Ile Leu
270   275   280   285

cct gga gga gta gct gat cag cat ggg cgt tta tgc agt gga gac cac   973
Pro Gly Gly Val Ala Asp Gln His Gly Arg Leu Cys Ser Gly Asp His
                290   295   300

att cta aag att ggt gac aca gat cta gca gga atg agc agt gag caa   1021
Ile Leu Lys Ile Gly Asp Thr Asp Leu Ala Gly Met Ser Ser Glu Gln
                305   310   315

```
gta gca caa gtc ctt agg caa tgt gga aat aga gtt aag ttg atg att        1069
Val Ala Gln Val Leu Arg Gln Cys Gly Asn Arg Val Lys Leu Met Ile
        320               325               330


gca aga agt gcc ata gaa gaa cgt aca gca ccc act gct ttg ggc atc        1117
Ala Arg Ser Ala Ile Glu Glu Arg Thr Ala Pro Thr Ala Leu Gly Ile
        335               340               345


acc ctc tcc tca tcc cca act tca acg cca gag ttg cgg gtt gat gct        1165
Thr Leu Ser Ser Ser Pro Thr Ser Thr Pro Glu Leu Arg Val Asp Ala
350               355               360               365


tct act cag aaa ggt gaa gaa agt gag aca ttt gat gta gaa ctc act        1213
Ser Thr Gln Lys Gly Glu Glu Ser Glu Thr Phe Asp Val Glu Leu Thr
                370               375               380


aaa aat gtc caa gga tta gga att acc att gct ggc tac att gga gat        1261
Lys Asn Val Gln Gly Leu Gly Ile Thr Ile Ala Gly Tyr Ile Gly Asp
             385               390               395


aaa aaa ttg gaa cct tca gga atc ttt gta aag agc att aca aaa agc        1309
Lys Lys Leu Glu Pro Ser Gly Ile Phe Val Lys Ser Ile Thr Lys Ser
        400               405               410


agt gcc gtt gag cat gat gga aga atc caa att gga gac caa att ata        1357
Ser Ala Val Glu His Asp Gly Arg Ile Gln Ile Gly Asp Gln Ile Ile
        415               420               425
```

gca gta gat ggc aca aac ctt cag ggt ttt act aat cag caa gca gta   1405
Ala Val Asp Gly Thr Asn Leu Gln Gly Phe Thr Asn Gln Gln Ala Val
430   435   440   445

gag gta ttg cga cat aca gga caa act gtg ctc ctg aca cta atg agg   1453
Glu Val Leu Arg His Thr Gly Gln Thr Val Leu Leu Thr Leu Met Arg
            450   455   460

aga gga atg aag cag gaa gcc gag ctc atg tca agg gaa gac gtc aca   1501
Arg Gly Met Lys Gln Glu Ala Glu Leu Met Ser Arg Glu Asp Val Thr
            465   470   475

aaa gat gca gat ttg tct cct gtt aat gcc agc ata atc aaa gaa aat   1549
Lys Asp Ala Asp Leu Ser Pro Val Asn Ala Ser Ile Ile Lys Glu Asn
            480   485   490

tat gaa aaa gat gaa gat ttt tta tct tcg acg aga aac acc aac ata   1597
Tyr Glu Lys Asp Glu Asp Phe Leu Ser Ser Thr Arg Asn Thr Asn Ile
            495   500   505

tta cca act gaa gaa gaa ggg tat cca tta ctg tca gct gag ata gaa   1645
Leu Pro Thr Glu Glu Glu Gly Tyr Pro Leu Leu Ser Ala Glu Ile Glu
510   515   520   525

gaa ata gaa gat gca caa aaa caa gaa gct gct ctg ctg aca aaa tgg   1693
Glu Ile Glu Asp Ala Gln Lys Gln Glu Ala Ala Leu Leu Thr Lys Trp

```
                    530                 535                 540

caa agg att atg gga att aac tat gaa ata gtg gtg gcc cat gtg agc         1741
Gln Arg Ile Met Gly Ile Asn Tyr Glu Ile Val Val Ala His Val Ser
          545                 550                 555

aag ttt agt gag aac agt gga ttg ggg ata agc ctg gaa gcg aca gtg         1789
Lys Phe Ser Glu Asn Ser Gly Leu Gly Ile Ser Leu Glu Ala Thr Val
          560                 565                 570

gga cat cat ttt atc cga tct gtt cta cca gag ggt cct gtt gga cac         1837
Gly His His Phe Ile Arg Ser Val Leu Pro Glu Gly Pro Val Gly His
          575                 580                 585

agc ggg aag ctc ttc agt gga gac gag cta ttg gaa gta aat ggc ata         1885
Ser Gly Lys Leu Phe Ser Gly Asp Glu Leu Leu Glu Val Asn Gly Ile
590                 595                 600                 605

act tta ctt ggg gaa aat cac caa gat gtg gtg aat atc tta aaa gaa         1933
Thr Leu Leu Gly Glu Asn His Gln Asp Val Val Asn Ile Leu Lys Glu
                    610                 615                 620

ctg cct ata gaa gtg aca atg gtg tgc tgt cgt cga act gtg cca ccc         1981
Leu Pro Ile Glu Val Thr Met Val Cys Cys Arg Arg Thr Val Pro Pro
          625                 630                 635

acc acc caa tca gaa ttg gat agc ctg gac tta tgt gat att gag cta         2029
```

Thr Thr Gln Ser Glu Leu Asp Ser Leu Asp Leu Cys Asp Ile Glu Leu
     640   645   650

aca gaa aag cct cac gta gat cta ggt gag ttc atc ggg tca tca gag   2077
Thr Glu Lys Pro His Val Asp Leu Gly Glu Phe Ile Gly Ser Ser Glu
     655   660   665

cca gag gat cca gtg ctg gcg atg act gat gcg ggt cag agt aca gaa   2125
Pro Glu Asp Pro Val Leu Ala Met Thr Asp Ala Gly Gln Ser Thr Glu
670   675   680   685

gag gtt caa gca cct ttg gcc atg tgg gag gct ggc att cag cac ata   2173
Glu Val Gln Ala Pro Leu Ala Met Trp Glu Ala Gly Ile Gln His Ile
           690   695   700

atg ctg gag aaa ggg agc aaa gga ctt ggt ttt agc att tta gat tat   2221
Met Leu Glu Lys Gly Ser Lys Gly Leu Gly Phe Ser Ile Leu Asp Tyr
     705   710   715

cag gat cca att gat cca gca agc act gtg att ata att cgt tct ttg   2269
Gln Asp Pro Ile Asp Pro Ala Ser Thr Val Ile Ile Ile Arg Ser Leu
     720   725   730

gtg cct ggc ggc att gct gaa aag gat gga cga ctt ctt cct ggt gac   2317
Val Pro Gly Gly Ile Ala Glu Lys Asp Gly Arg Leu Leu Pro Gly Asp
     735   740   745

```
cga ctc atg ttt gta aac gat gtt aac ttg gaa aac agc agt ctt gag        2365
Arg Leu Met Phe Val Asn Asp Val Asn Leu Glu Asn Ser Ser Leu Glu
750             755             760             765


gaa gct gta gaa gca ctg aag gga gca ccg tca ggg act gtg aga ata        2413
Glu Ala Val Glu Ala Leu Lys Gly Ala Pro Ser Gly Thr Val Arg Ile
                770             775             780


gga gtt gct aag cct tta ccc ctt tca cca gaa gaa ggt tat gtt tct        2461
Gly Val Ala Lys Pro Leu Pro Leu Ser Pro Glu Glu Gly Tyr Val Ser
                785             790             795


gct aag gag gat tcc ttt ctc tac cca cca cac tcc tgt gag gaa gca        2509
Ala Lys Glu Asp Ser Phe Leu Tyr Pro Pro His Ser Cys Glu Glu Ala
                800             805             810


ggg ctg gct gac aaa ccc ctc ttc agg gct gac ttg gct ctg gtg ggc        2557
Gly Leu Ala Asp Lys Pro Leu Phe Arg Ala Asp Leu Ala Leu Val Gly
        815             820             825


aca aat gat gct gac tta gta gat gaa tcc aca ttt gag tct cca tac        2605
Thr Asn Asp Ala Asp Leu Val Asp Glu Ser Thr Phe Glu Ser Pro Tyr
830             835             840             845


tct cct gaa aat gac agc atc tac tct act caa gcc tct att tta tct        2653
Ser Pro Glu Asn Asp Ser Ile Tyr Ser Thr Gln Ala Ser Ile Leu Ser
                850             855             860
```

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ctt cat ggc agt tct tgt ggt gat ggc ctg aac tat ggt tct tcc ctt        2701
Leu His Gly Ser Ser Cys Gly Asp Gly Leu Asn Tyr Gly Ser Ser Leu
            865               870               875


cca tca tct cct cct aag gat gtt att gaa aat tct tgt gat cca gta        2749
Pro Ser Ser Pro Pro Lys Asp Val Ile Glu Asn Ser Cys Asp Pro Val
            880               885               890


ctt gat ctg cat atg tct ctg gag gaa cta tat acc cag aat ctc ctg        2797
Leu Asp Leu His Met Ser Leu Glu Glu Leu Tyr Thr Gln Asn Leu Leu
        895               900               905


gaa aga cag gat gag aat aca cct tcg gtg gac ata agt atg ggg cct        2845
Glu Arg Gln Asp Glu Asn Thr Pro Ser Val Asp Ile Ser Met Gly Pro
910               915               920               925


gct tct ggc ttt act ata aat gac tac aca cct gca aat gct att gaa        2893
Ala Ser Gly Phe Thr Ile Asn Asp Tyr Thr Pro Ala Asn Ala Ile Glu
                930               935               940


caa caa tat gaa tgt gaa aac aca ata gtg tgg act gaa tct cat tta        2941
Gln Gln Tyr Glu Cys Glu Asn Thr Ile Val Trp Thr Glu Ser His Leu
            945               950               955


cca agt gaa gtt ata tca agt gca gaa ctt cct tct gtg cta ccc gat        2989
Pro Ser Glu Val Ile Ser Ser Ala Glu Leu Pro Ser Val Leu Pro Asp
```

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                960                 965                 970


     tca gct gga aag ggc tct gag cac ctg ctt gaa cag agc tcc ctg gcc    3037
     Ser Ala Gly Lys Gly Ser Glu His Leu Leu Glu Gln Ser Ser Leu Ala
         975                 980                 985


     tgt aat gct gag tgt gtc atg ctt caa aat gta tct aaa gaa tct ttt    3085
     Cys Asn Ala Glu Cys Val Met Leu Gln Asn Val Ser Lys Glu Ser Phe
     990                 995                 1000                1005


     gaa agg act att aat ata gca aaa ggc aat tct agc cta gga atg aca    3133
     Glu Arg Thr Ile Asn Ile Ala Lys Gly Asn Ser Ser Leu Gly Met Thr
                     1010                1015                1020


     gtt agt gct aat aaa gat ggc ttg ggg atg atc gtt cga agc att att    3181
     Val Ser Ala Asn Lys Asp Gly Leu Gly Met Ile Val Arg Ser Ile Ile
                 1025                1030                1035


     cat gga ggt gcc att agt cga gat ggc cgg att gcc att ggg gac tgc    3229
     His Gly Gly Ala Ile Ser Arg Asp Gly Arg Ile Ala Ile Gly Asp Cys
                 1040                1045                1050


     atc ttg tcc att aat gaa gag tct acc atc agt gta acc aat gcc cag    3277
     Ile Leu Ser Ile Asn Glu Glu Ser Thr Ile Ser Val Thr Asn Ala Gln
         1055                1060                1065


     gca cga gct atg ttg aga aga cat tct ctc att ggc cct gac ata aaa    3325
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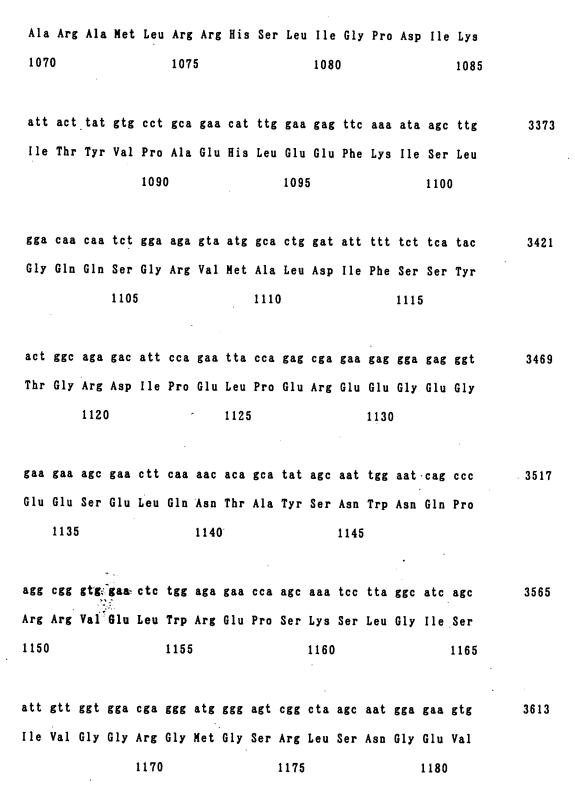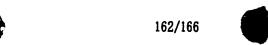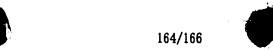
Ala Arg Ala Met Leu Arg Arg His Ser Leu Ile Gly Pro Asp Ile Lys

1070   1075   1080   1085

att act tat gtg cct gca gaa cat ttg gaa gag ttc aaa ata agc ttg   3373
Ile Thr Tyr Val Pro Ala Glu His Leu Glu Glu Phe Lys Ile Ser Leu

           1090   1095   1100

gga caa caa tct gga aga gta atg gca ctg gat att ttt tct tca tac   3421
Gly Gln Gln Ser Gly Arg Val Met Ala Leu Asp Ile Phe Ser Ser Tyr

        1105   1110   1115

act ggc aga gac att cca gaa tta cca gag cga gaa gag gga gag ggt   3469
Thr Gly Arg Asp Ile Pro Glu Leu Pro Glu Arg Glu Glu Gly Glu Gly

          1120   1125   1130

gaa gaa agc gaa ctt caa aac aca gca tat agc aat tgg aat cag ccc   3517
Glu Glu Ser Glu Leu Gln Asn Thr Ala Tyr Ser Asn Trp Asn Gln Pro

       1135   1140   1145

agg cgg gtg gaa ctc tgg aga gaa cca agc aaa tcc tta ggc atc agc   3565
Arg Arg Val Glu Leu Trp Arg Glu Pro Ser Lys Ser Leu Gly Ile Ser

1150   1155   1160   1165

att gtt ggt gga cga ggg atg ggg agt cgg cta agc aat gga gaa gtg   3613
Ile Val Gly Gly Arg Gly Met Gly Ser Arg Leu Ser Asn Gly Glu Val

        1170   1175   1180

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atg agg ggc att ttc atc aaa cat gtt ctg gaa gat agt cca gct ggc     3661
Met Arg Gly Ile Phe Ile Lys His Val Leu Glu Asp Ser Pro Ala Gly
        1185            1190            1195


aaa aat gga acc ttg aaa cct gga gat aga atc gta gag gtg gat gga     3709
Lys Asn Gly Thr Leu Lys Pro Gly Asp Arg Ile Val Glu Val Asp Gly
        1200            1205            1210


atg gac ctc aga gat gca agc cat gaa caa gct gtg gaa gcc att cgg     3757
Met Asp Leu Arg Asp Ala Ser His Glu Gln Ala Val Glu Ala Ile Arg
        1215            1220            1225


aaa gca ggc aac cct gta gtc ttt atg gta tagagcttta ttacagacca       3807
Lys Ala Gly Asn Pro Val Val Phe Met Val
1230            1235


agggcaccca gtcagtcagt cagagtcaga gtcagagtca gagccagaga aggctccatt   3867


gtgcagtgtg cccccacccc ctccttcagc ctttgccgaa atgggtagtg atcacacaca   3927


gtcatctgca agcaaaatct cacaagatgt ggacaaagag gatgagtttg gttacagctg   3987


gaaaaatatc agagagcgtt atggaaccct aacaggcgag ctgcatatga ttgaactgga   4047


gaaaggtcat agtggtttgg gcctaagtct tgctgggaac aaagaccgat ccaggatgag   4107


tgtcttcata gtggggattg atccaaatgg agctgcagga aaagatggtc gattgcaaat   4167
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tgcagatgag cttctagaga tcaatggtca gattttatat ggaagaagtc atcagaatgc     4227

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tgcagtgaat cagatggccg tatgtcctgg aaatgcagta gaacctttgc cttctaactc     4347

agaaaatctt caaaataagg agacagagcc aactgttact acttctgatg cagctgtgga     4407

cctcagttca tttaaaaatg tgcaacatct ggagcttccc aaggatcagg ggggtttggg     4467

tattgctatc agcgaagaag atacactcag tggagtcatc ataaagagct taacagagca     4527

tggggtagca gccacggatg gacgactcaa agtcggagat cagatactgg ctgtagatga     4587

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gacagtaaaa cttaccatcc atgctgagaa tccagattcc caggctgttc cttcagcagc     4707

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agggcgaaca gggctgggcc tgagcatcgt tgggggttca gacacgctgc tgggtgcctt     4947
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tattatccat gaagtttatg aagaaggagc agcatgtaaa gatggaagac tctgggctgg    5007

agatcagatc ttagaggtga atggaattga cttgaggaag gccacacatg atgaagcaat    5067

caatgtcctg agacagacgc cacagagagt gcgcctgaca ctctacagag atgaggcccc    5127

atacaaagag gaggaagtgt gtgacaccct cactattgag ctgcagaaga agccgggaaa    5187

aggcctagga ttaagtattg ttggtaaaag aaacgatact ggagtatttg tgtcagacat    5247

tgtcaaagga ggaattgcag atcccgatgg aagactgatc cagggagacc agatattatt    5307

ggtgaatggg gaagacgttc gtaatgcctc ccaagaagcg gttgccgctt tgctaaagtg    5367

ttccctaggc acagtaacct tggaagttgg aagaatcaaa gctggtccat tccattcaga    5427

gaggaggcca tctcaaacca gccaggtgag tgaaggcagc ctgtcttctt tcactttttcc   5487

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atctgaaata cagggattaa gaacagtcga aatgaaaaag ggccctactg actcactggg    5607

aatcagcatc gctggaggag taggcagccc acttggtgat gtgcctatat ttattgcaat    5667

gatgcaccca actggagttg cagcacagac ccaaaaactc agagttgggg ataggattgt    5727

caccatctgt ggcacatcca ctgagggcat gactcacacc caagcagtta acctactgaa    5787
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aaatgcatct ggctccattg aaatgcaggt ggttgctgga ggagacgtga gtgtggtcac    5847

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tatatttcag gatgatttag gacctcctca atgtaagtct attacactag agcgaggacc    5967

agatggctta ggcttcagta tagttggagg atatggcagc cctcatggag acttacccat    6027

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aggatgaaaa atgaaaatat aaaataaaga agaaaatctc ggggagttta aaaaaaatgc   6627

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